MAY, 1954

WOOD and Wood Products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE OF THE WOOD INDUSTRY

A Vance Publication

FEATURES IN THIS ISSUE

- "Target Line" System for Precision Lumber Handling
- Bending, Bonding, Finishing with Glycerine
- Modernize—Mechanize . . . for Wood's Future
- Modern Machines Bore Holes Wholesale
- What's New in Woodworking Show Exhibits

WOOD SALUTES

H. E. Holman

LOWER COSTS THROUGH MODERNIZATION

Woodworkers seeking ways and means to reduce production costs can lower these costs through the better utilization of modern processes and techniques and through modernization of their equipment. Old machines although built to the demands of their time lack the speed, versatility and production capacity of today's modern equipment.

The Whitney line of modern woodworking machinery has been designed for smoother, faster operation and maximum production. They are versatile, easy to operate and maintain, and are built for heavy duty, long life service.

Whitney's experience building quality production machines for more than 100 years coupled with many new developments by Whitney engineers back up the performance and dependability of these machines.

When in the market for new equipment check first to see if Whitney makes it. An experienced Whitney representative near you will be glad to talk over your problem and make suggestions. No obligation, of course.

Write for information on these *new* Whitney machines: the 600 New-Matic Facer, the 206 6-Roll Single Surfacer and the 589 Single Spindle Shaper.

Baxter D. Whitney & Son, Inc.
WINCHENDON, MASSACHUSETTS, U. S. A.

First in the Field — Still in the Lead

In Our 117th Year

Whitney
FOR FINEST PERFORMANCE

PLANERS • SHAPERS • AUTOMATIC SHAPERS • FACERS • VARIETY SAWS • BACK KNIFE LATHES

Serving the Industry Since 1852

PRODUCTION MORE THAN DOUBLED

THE LANE COMPANY, INC.
Altavista, Virginia
Permanent Displays: New York, Chicago, San Francisco, Los Angeles, High Point

January 12, 1954

S. A. Woods Machine Company
27 Damrell Street
Boston 27, Massachusetts

Attention: Mr. H. C. Dodge, President

Gentlemen:

After six months' production operation with our Woods #137M-7" Electric Moulder, we feel you might be interested in our views of its performance.

In our opinion, it has proven beyond a doubt to be the best piece of moulding equipment for the production furniture manufacturer on the market today. Its high speed and exceptionally good quality work has enabled us to produce our requirements with lower unit costs of both labor and material. The tapered spindles and our ability to joint the heads off the moulder in our saw-filing room have permitted us to reduce setup times to a bare minimum. We are running exposed profile stock which we formerly ran at 30-40 f.p.m. at 80-100 f.p.m., and a large portion of our moulding as high as 150-155 f.p.m.

Our operators, foremen and plant superintendent are all highly pleased with the performance of the moulder, and we feel your company should be commended for the engineering and development of this equipment.

Very truly yours,

J. W. Brandon

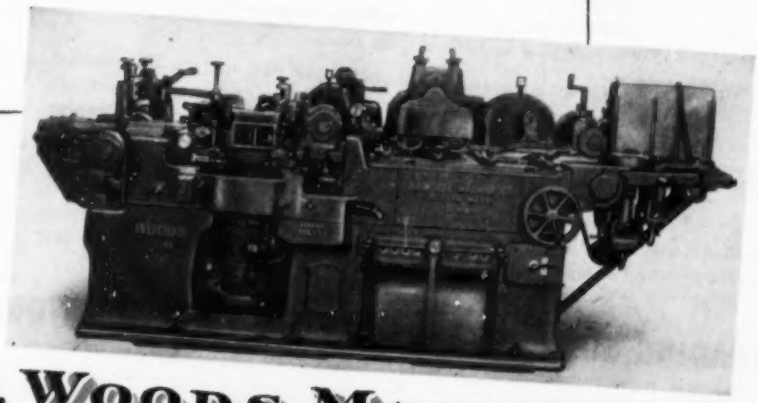
J. W. Brandon
Plant Manager

JWB:wlf

WITH

WOODS® ELECTRIC MOULDER

This Moulder with feed rates up to 160 F.P.M. is adapted to every woodworking plant that does moulding work of any kind: furniture, cabinets, chairs, trim and interior finish.



WOODS 137M
Electric
Patented
"Lag Bed"
Moulder

S. A. WOODS MACHINE CO.

27 DAMRELL STREET
BOSTON 27, MASS.

Branch Offices: ARK., Little Rock CALIF., San Mateo N. Y., Mount Vernon ORE., Portland TENN., Memphis VA., Richmond
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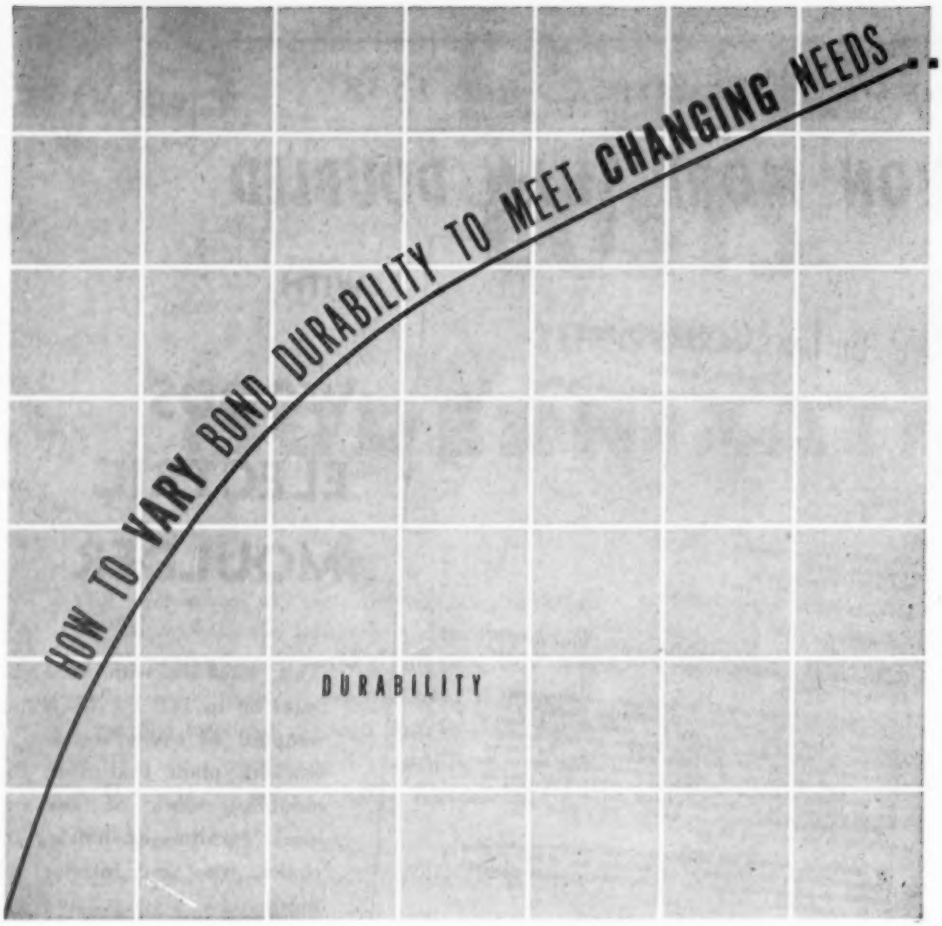

...with Monsanto Lauxite MF 300

The addition of as little as 10% of Lauxite MF 300 melamine resin improves the bond durability of urea glues. By varying the percentage of Lauxite MF 300, you can obtain any degree of durability your individual needs demand. This flexibility results in real dollar and cents economy—often saving plywood manufacturers *up to 50%* in glue costs.

Other advantages of Lauxite MF 300 include its colorless glue line and simplicity of use. Already, woodworkers are finding it extremely profitable to upgrade flush doors, export shipping containers, table and desk tops, and many other products with this more durable adhesive. So, why not call, or write or wire and let a technical representative of Monsanto, *the world's leading supplier of glues to the woodworking industry*, develop the best Lauxite MF 300 or Lauxite MF 300-urea combination for your needs.

WORLD'S LEADING SUPPLIER OF GLUES TO THE WOODWORKING INDUSTRY

Monsanto supplies a complete line of plywood and woodworking adhesives from conveniently located plants at Springfield, Mass., Seattle, Washington and Santa Clara, California.

LAUXITE—melamine, phenolic, urea and resorcinal adhesives

LAUXEIN—casein and soy bean glues

For information on glues for plywood production, edge gluing and general assembly gluing, write to:

MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield 2, Mass.
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MONSANTO

SERVING INDUSTRY . . . WHICH SERVES MANKIND

WOOD and Wood Products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE OF THE WOOD INDUSTRY

MAY, 1954

Vol. 59, No. 5

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(advertisement)

Mauk Talk

If a man thinks he has trouble supporting a wife just let him try not supporting her!

* * *

Sailor: "I've gone out with dozens of girls and never kissed one."

Marine: "Yeah? Which one?"

* * *

This new wide screen is terrific for double features. You can see both movies at once and save time.

* * *

Overheard toward the end of a cocktail party: "I feel a hell of a lot more like I do now than when I came."

* * *

When you know exactly what you want for your building needs, let us know exactly, all the way down to end uses, too, and the MAUK Lumber Co. can deliver.

Now, if you need a hand in figuring your order just S.O.S. our Seattle office (EVergreen 0300) and our staff of experts will help analyze your problem. Result — better quality, greater economy, happier profits.

* * *

Simple Celia says her boy friend lied to her about the size of his yacht —and besides, he made her do all the rowing!

* * *

They say economy is a way of spending money without getting any fun out of it.

* * *

Then there was the newly married couple at Niagara Falls. They were so happy they didn't know what to do.

* * *

MAUK Seattle Lumber Co.
Seattle, Washington

* * *

C. A. MAUK Lumber Co.
Toledo, Ohio

On-the-job photo, Mid-State Wood Products Corp.

16 HOLES BORED IN ONE OPERATION

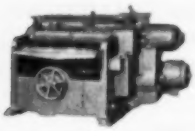
WITH GREENLEE NO. 386 GANG BORER

Here's another example of how the GREENLEE universal-spindle gang borer speeds production, assures accuracy of product. At Mid-State Wood Products Corp., Rockford, Illinois, this machine with one quick stroke bores 16 holes in fir plywood speaker panels for television sets. Due to its wide range and the convenience and simplicity of its adjustments, the GREENLEE is adapted to a great variety of boring work. Universal spindles can be quickly located at any point along the table . . . dozens can be used for one operation. Available in lengths from 4 to 16 feet to meet your exact production requirements.

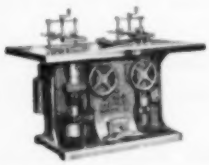
Write for Bulletin No. 386 **GREENLEE BROS. & CO.**
1925 Twentieth Avenue, Rockford, Illinois.

GREENLEE WOODWORKING MACHINERY AND TOOLS
The GREENLEE line of woodworking machinery includes tenoners, mortisers, borers, saws, planers, and shapers.

GREENLEE DOUBLE-END TENONER . . . often called "a woodworking plant in itself." Renowned for quick, easy setup and wide versatility. Single-end Tenoners also made by GREENLEE.



GREENLEE SIX-ROLL SINGLE PLANER . . exceptionally smooth in operation. One of a line of single and double planers for fine work, high production.



GREENLEE MOTOR-DRIVEN SHAPER . . . all-around unit for high-speed, precision shaping. Double-spindle type, needs no separate frequency changer.

MORTISING AND BORING TOOLS . . . Countersinks, Hollow Chisels, Multi-Spur Bits, Machine Bits and other tools by GREENLEE mean top production from your woodworking machines.

GREENLEE

MAY, 1954

WOOD and Wood Products

VOL. 59, NO. 5

INDUSTRY NEWS . . . . . AND TRENDS

LUMBER

Lumber Market Shows Upturn

Indications that the lumber market is beginning to strengthen are noted in a report from the Western Pine Association. W. E. Griffee, assistant secretary-manager, predicted the second quarter shipments should approximate 2,050 million bd. ft., or about 1.9% more than the relatively poor second quarter last year.

He further reported that preliminary estimates showed lumber shipments of the three western pines for the first quarter totaled 1.560 million bd. ft., 5.8% below 1953's same period. Production, he said, was 1,401 million bd. ft., or 4.7% below the all-time first quarter high of 1,470 million bd. ft. in 1953. However, this year's first period shipments and production did exceed other first quarters previous to 1953, he said.

In Chicago, the Marsh & Truman Lumber Co. reported first quarter orders showed an increase of 18% over the comparable period in 1953, although that year was one of the best in company history. With an improvement in the weather and a speed-up in construction, A. Fletcher Marsh, company president, anticipates that both orders and shipments will pick up considerably in the second quarter.

From Canada, the Schultz & Co. foresters and engineers report that lumber buying is increasing steadily throughout the United States as moderate weather conditions allow the resumption of construction. Business has been brisk in spots, but the sales volume has not been large. The Canadian trade is hopeful of a much improved export market, since its volume will largely determine the strength of the domestic market as well.

Shipments Above Production

Lumber shipments of 528 mills reporting to the National Lumber Trade Barometer were 3.9% above production for the week ending March 27. In the same week new orders of these mills were 1.5% above production. Unfilled orders of the reporting mills amounted to 38% of stocks. For the reporting softwood mills unfilled orders were equivalent to 23 days' production at the current rate, and gross stocks were equivalent to 58 days' production.

For the year to date, shipments of reporting identical mills were 2% above production; new orders were 6.7% above production.

West Coast Lumbermen Plan Hard-Hitting Promotion Policies

West Coast Lumbermen's Association stockholders gave unanimous approval to the hard-hitting promotion policies of the officers at the 43rd annual meeting held recently in Portland, Ore., and attended by millmen from California, Oregon and Washington. All officers were re-elected. Seated, from left: G. E. Karlen, president; H. V. Simpson, executive vice-president; and W. B. Greeley, vice-president. Standing, from left: W. A. Culkin, treasurer; Harris E. Smith, secretary; R. M. Ingram and N. B. Giustina, vice-presidents for Washington and Oregon

Wood's Role in War Planned

The lumber industry's strategic role in mobilization planning, as well as its past contributions to national defense were cited recently to nearly 100 officers of the U. S. Naval Reserve by representatives of the National Lumber Mfrs. Association and its research affiliate, Timber Engineering Co. Each officer is being prepared for prompt assignment to a key defense mobilization post, in event of war, wherein he will work with manufacturers of wood products and other items in gearing their operations to wartime requirements.

The lumber industry's presentation was headed by J. L. Stearns, Teco's assistant director of research, who stated that unlike the concentrated steel-producing centers, "the American sawmills are so widely scattered that no amount of bombing could ever put the lumber industry out of business."

Six specific developments, achieved

largely through research, for effecting a quicker, more economical transition from peacetime to wartime conditions, were cited by Mr. Stearns as follows:

1. A nationwide emergency lumber distribution system sponsored by the National Security Industrial Association; 2. all-wood truck body designs that permit mass production with existing plant facilities; 3. "cut-up plants" for maximum use of every board; 4. unitizing standard lumber items to expedite handling; 5. preservative treatment of bulk and unitized lumber; and 6. quality control methods that assure required performance of glued and laminated wood products.

Canadians Improve Product

In an effort to meet the buyers' demand for higher standards of performance from sawmills, a campaign is on in British Columbia lumbering circles to refine the product. This refinement involves all operations; sawing, drying, trimming, planing, marking, grading, strict observance of contract and inspection of product at the mill, as well as maintenance of standards.

As one operator points out, "It's no good giving the customer a 2 x 6 in. size and expect him to cut it down to the 2 x 4 he really wants. We've started smoothing and painting the rough ends and carefully grading by color, too."

Another activity has been to integrate sawmills with pulp mills, the result being to cut costs and improve over-all efficiency in order to meet tough price competition.

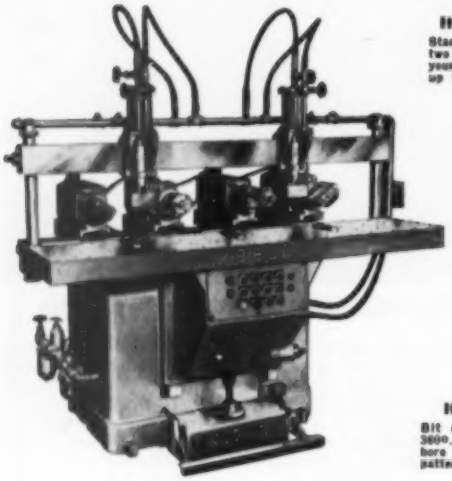
Lumber Output Below '53 Pace

In its 91st quarterly report to the Secretary of Commerce, the Lumber Survey Committee states that, "Current reports indicate that 1954 lumber production so far has been below the unusually high output of the early weeks of 1953. While for softwoods both shipments and new orders this year have been greater than production, for hardwoods they have been less than the corresponding output."

The report also noted that, "1953 marked the fourth consecutive year that production has exceeded 38 billion bd. ft. While the fourth quarter of 1953 experienced a seasonal decline in lumber production, supply continued to exceed demand.

"The wholesale price index of the Bureau of Labor Statistics reflected a gradual decline in average lumber prices through the latter three quarters of 1953 which, except for a leveling off in December, continued in January, 1954."

Are you paying for a "205"
—without getting these benefits?



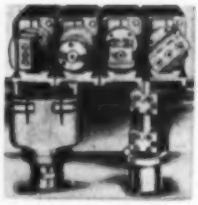
It Can Grow!
Start with one or two heads. Add as your needs require... up to 14 heads.

It's Flexible!
Table raises 6 inches—speeds set-ups. Will handle your 1,001 boring jobs.

It's Fast!
Set it for automatic cycling, or manual operations—one cycle and stop.

It's Accurate!
Boring depth is adjustable. (7" maximum.) Stroke is by smooth air power.

It's Adaptable!
Bit clusters rotate through 360°. Same cluster can bore horizontal or vertical pattern.



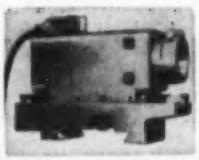
You have a wide choice of spindle clusters, both standard and special. Each one fits any motor unit on the "205". Units have one to six boring spindles arranged in line or staggered patterns. Each rotates 3800, giving full flexibility in set-ups.

Bell's new Electric-Pneumatic BORING MACHINE will pay for itself in labor saving, in increased production, and in accuracy of work (shortening time in assembly)! As a single-purpose machine in large plants you can't beat its efficiency . . . and yet it is just as ideally suited to general-purpose boring. The "205" can replace an entire group of smaller, less flexible machines.

If present inefficient methods are eating up the cost of a "205", why not change over—and start to enjoy savings!

Visit Us in Grand Rapids
May 5-6-7, Space D-9-10-11
and D-12-13-14

For complete information, write to—



In each compact boring head a 1½-H.P. motor delivers power directly to boring bit, with no lost power through unnecessary linkage! (2 H.P. available for extra-tough jobs.) Smooth air power moves all heads into the work. Speed and depth of stroke can be regulated.

Bell
MACHINE COMPANY
78 Jackson Dr., Oshkosh, Wisconsin

CONSTRUCTION

First Quarter Sets Record

New construction during the first quarter of 1954 climbed to a record $7.3 billion, according to the departments of Labor and Commerce. This total is $100 million greater than was spent in the first three months of 1953. Making allowances for seasonal factors, the departments said, total first quarter outlays ran at an annual rate of $39.1 billion. This is well above the $34 billion forecast for 1954.

The $2.5 billion figure for March was almost 10% above February's and was equal to that of March, 1953. Most of the over-all increase in March over February reflected expansion during the month on private housing and public utility construction, plus gains in highway work. Private industrial building, which usually declines in the early months of each year, dropped a less than seasonal 2.8% from February to $172 million.

CONTAINERS

Wirebound Box Future Bright

Wirebound shipping container manufacturers are almost unanimously op-

they like the MATTISON MOULDER at Tomlinson . . . . .

Since 1900 Furniture by Tomlinson has been a quality name from coast to coast. The finest equipment for all phases of production are a *must* . . . naturally they like the Mattison Moulder at Tomlinson.

The Tomlinson operator likes it because it is as easy to set-up, feeds so easy and produces so few rejects . . .

The Tomlinson foreman likes it because he gets production when he wants it and as he wants it—*good* . . .

The Tomlinson superintendent likes it because it produces high quality quickly and easily and his production schedules are consistently met . . .

The Tomlinson cost department likes it because it produces high quality work at low cost . . .

The Tomlinson management likes it because work comes through uniformly accurate, and proper fitting —a necessity in producing high quality bedroom, living room and dining room furniture by Tomlinson.

Yes — makers of Furniture by Tomlinson like the Mattison Moulder — and *you* will like it, too!

MATTISON MACHINE WORKS

ROCKFORD · ILLINOIS

See Mattison machines in operation at Grand Rapids Machinery Show, May 5-6-7. YOU'RE INVITED!

timistic concerning the industry's immediate and long-range prospects. This feeling is based in part on last year's record volume of business and on aggressive promotion and engineering research geared to penetrate new fields for the use of wirebound boxes and crates. Despite a noticeable slump the first two months of 1954, there is decided optimism for the months ahead.

Last year the dollar volume was 3.3% over that of 1952 and the unit volume was 6.6% greater than the previous year. The industry did more than $111 million in business in 1953. In the general industry category the number of wirebound boxes and crates increased in 1953 by 3.8% over 1952 production. The dollar volume increased 6.9% which reflects greater use of heavier and more complicated boxes and craters for heavier indusrtial products.

FURNITURE

Inventory Adjustment Near End

A period of inventory adjustment by retailers is nearing its end, according to General Lawrence H. Whiting, president of the American Furniture Mart, Chicago. While retail sales by these dealers in the first quarter this year eased off between 10 and 15% compared with the high levels of a year ago, their orders placed with manufacturers in the industry dipped between 15 and 20%, he said.

Result has been a substantial reduction in retail inventories which leaves dealers in a relatively more favorably "open-to-buy" position. Their orders in the second quarter should more closely approximate actual sales. In the event of a business upturn, for which there are sound hopes, the pickup could be quite sharp.

It is well to remember that first quarter comparison of furniture business is made with the best quarter of the best year on record, General Whiting said. Although there is some undertime in the industry's factories, the majority are still working at normal rates and there is a sprinkling of overtime. Earlier predictions that we might easily have the second best year on record can be met by slight improvement in business the rest of this year.

Opening of new television stations in areas not formerly served by this medium has given renewed strength to the TV divisions of the industry. Further stimulation of TV set-buying has been found in the new UHF station area being opened at an increasing rate because of the new type sets required for reception. Shipments in excess of 600,000 sets in the first month this year suggest the 1954 goal of 5 million sets can easily be reached.

Two important factors give rise to "cautious optimism". First is the realization that public desire for the many fine new products of the industry can be stimulated by well-planned selling efforts. To accomplish this, manufacturers are stepping up their advertising and promotional activity. Second is the tremendous improvement in values and style features now offered by the industry. Mass production methods adapted to production of today's furniture are bringing the very best products within easy reach of every wage earner in the nation.

FURNITURE MANUFACTURER
Saves $5000 Yearly
WITH ARMSTRONG HUMIDIFIERS...
Read this Letter
Prior to installing Armstrong Humidifiers, it was normal to expect losses of goods in production and in storage, through checking and cracking of the wood. Fall was a particularly bad season, when hot, humid weather, with a relative humidity of 60% to 70%, might change over night to cold, dry days.
In an effort to keep warm, workmen in the plant would turn up the heating and as the temperature rose the % R. H. would drop very low.
Now, with Armstrong Humidifiers, it is possible to reduce the % R. H. gradually when the fall season sets in, until conditions become stable.
By operating this way, wastage through checking and splitting has been practically eliminated. Furniture can be stored in the warehouse from one season to the next without fear of losses from improper humidity control.
During the first season alone we saved almost enough to pay for the entire cost of the humidifiers. At present we are saving between $5,000.00 and $6,000.00 annually.
Vilas Furniture Co. Ltd.
Cowansville, Que.
Armstrong Steam Humidifiers connect easily into existing steam and electric lines.
Learn the facts about dry air—Send for Bulletin No. 1775
ARMSTRONG MACHINE WORKS
909 Maple St., • Three Rivers, Michigan
See us at the WOODWORKER'S INDUSTRY SHOW
May 5-6-7, 1954
Grand Rapids, Michigan

PULPWOOD

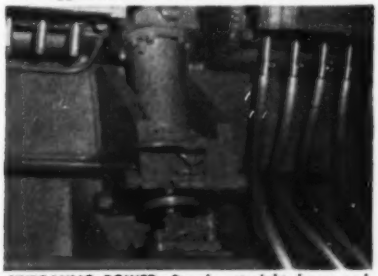
Plastic Saves Cracked Logs

Douglas fir trees formerly sold for lower priced lumber—or even left in the woods—can now be used as expensive peeled grade logs for making plywood, thanks to a newly devised technique of mending these cracked logs with plastic.

Normally, cracks in the ends of logs weaken the timber to such an extent that it tends to break off in the lathe under the pressure of peeling. Now plastic chips, about the shape of an

NEW DIEHL Hydronic NAILER

ELECTRONIC CONTROL—Nail-picking, main table adjustment, clinching bar, nail hoppers . . . all are controlled electronically by **foolproof** push-buttons and toggle-switches on the Master Control Panel.



HYDRAULIC POWER—Steady, straight-down and even pressure—throughout the length of the stroke—is provided by hydraulic power, with speeds up to 60 strokes per minute.

Years ahead of any nailer built today!

Electronically controlled—*hydraulically* powered—the revolutionary new Diehl HYDRONIC Nailer offers *higher production* per day at *less cost* per unit . . . with *more consistent quality* on any item produced.

Nail combinations are *pre-selected* from the Master Control Panel, by simply flipping toggle-switches which actuate pickers electronically. After nailing combination has been set, new HYDRONIC switches through combination cycles *automatically*—with no rotary discs to change—no delicate spring mechanisms to become inoperative. Only *two* different chuck sizes are used to accommodate nails from 2d through 10d. Such simplification *reduces set-up time 50% or more.*

Smooth, steady hydraulic power for drivers and clinchers eliminates predrilling—reduces bent nails and contour driving—provides better clinching.

If you're interested in *high-speed mass-production nailing at less cost*—write for specific information on the new Diehl HYDRONIC Nailer.

Write for New Catalog

Ask for your copy of this new, illustrated catalog—giving full details on the revolutionary Diehl HYDRONIC Nailer. Complete specifications are given on four different models.

STANDARD OF COMPARISON IN THE WOODWORKING INDUSTRY

THE G. M. Diehl MACHINE WORKS, INC.
WABASH, INDIANA • U.S.A.

See DIEHL at Booths 1-3, 22-23, Section D, the Wo odworkers Industry Show, Grand Rapids, May 5-6-7

ax blade but a little smaller, are driven into the logs crosswise to the cracks as a strengthener. The plastic is soft enough to be peeled without damaging the lathe blade.

This development may increase the available supply of plywood logs as much as 20%, according to some estimates. Called Scotch clips, they are driven into the logs with air guns and can save $15 to $20 worth of wood from many cracked logs.

RESEARCH

Wood Floors in Army Trucks

A special hardwood floor overlay, designed at the request of the government to restore smoothness to steel cargo truck body floors, has been developed under the nation's hardwood research program at the Washington, D. C., laboratory of Timber Engineering Co., research affiliate of NLMA.

Successful performance of the wood floor throughout tests in a 2½-ton truck now undergoing longtime, rigorous use at the Army's Aberdeen, Md., Proving Ground is expected to result in its widespread installation in military and commercial vehicles.

Made of red oak lumber, edge-glued with waterproof marine adhesive, the hardwood floor is treated preservatively and for dimensional stabilization. It was developed as a solution to the military's problems presented by steel floors becoming dented into a "washboard" surface that makes cargo handling and loading difficult.

PULPWOOD

Waste Wood Aids Pulp Supply

The pulp, paper and board industry is fostering measures aimed at increasing utilization of former waste wood from logging operations as well as from sawmills and other primary wood-using industries. Developments on the West Coast in this direction in the past decade and rapidly being applied in the South, Northeast and Lake States were cited recently by the American Pulpwood Association as playing an important part in the 1953 total consumption of 28 million cords or pulpwood. The southern region in 1953 produced 14.8 million cords compared with the 6.3 million cords of ten years previous.

SAFETY

31 Firms Post Perfect Records

A total of 31 firms in the wood products field posted perfect safety records for 1953 in the contest conducted by the National Safety Council. Of the 278 contestants, only Dierks Lumber-Coal Co. had an accident-free record in the logging category, and there were no perfect records in the sawmill or plywood veneer groups. Kroehler Mfg. Co. Plant 3 had the only perfect record in the furniture category.

One of the most accident-free groups was the wood preserving category, six divisions of Koppers Co. posting perfect records. Three cooperage firms and four box manufacturing and woodworking firms also had perfect records, Edward Hines Lumber Co. of Chicago being among the latter.

COMING EVENTS

May 5-7: National Meeting, FPRS, and Woodworkers Industry Show, Grand Rapids, Mich.

May 17-20; Basic Materials Exposition, International Amphitheatre, Chicago.

May 17-18; Pacific Northwest Section, FPRS, Elks Club, Aberdeen, Wash.

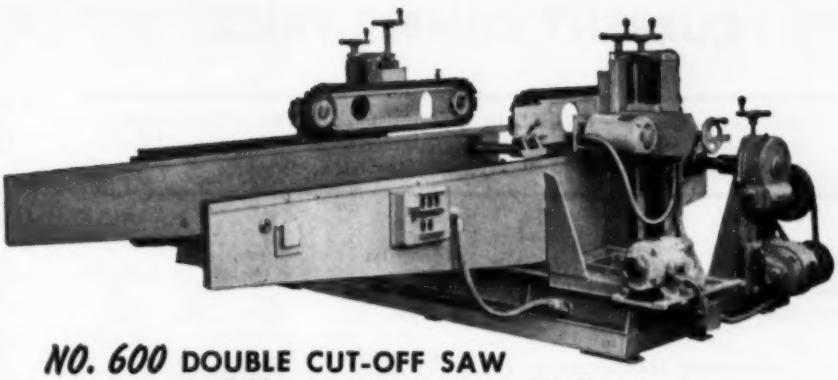
May 21-22: Redwood Region Logging Conference, Ukiah, Calif.

May 24-27; Office Machinery and Equipment Exposition of National Office Management Association, Kiel Auditorium, St. Louis.

For sanding, smoothing, polishing all types of wood products. A grit for every purpose — prompt service on every purchase.

ABRASIVE PRODUCTS, INC.
553 Pearl Street
South Braintree 85, Massachusetts

These new Mereen-Johnson double end machines are priced well within reach of most furniture, sash and door and allied plants. They have the quality and workmanship of the heavy duty units but, through the elimination of less essential features, are *much lower in price.*



NO. 600 **DOUBLE CUT-OFF SAW**

Available with trims only; or with tilting cope motors and stationary dado arbor. Special attachments are available as optional equipment.

TWO NEW MEREEN-JOHNSON DOUBLE END MACHINES . . .

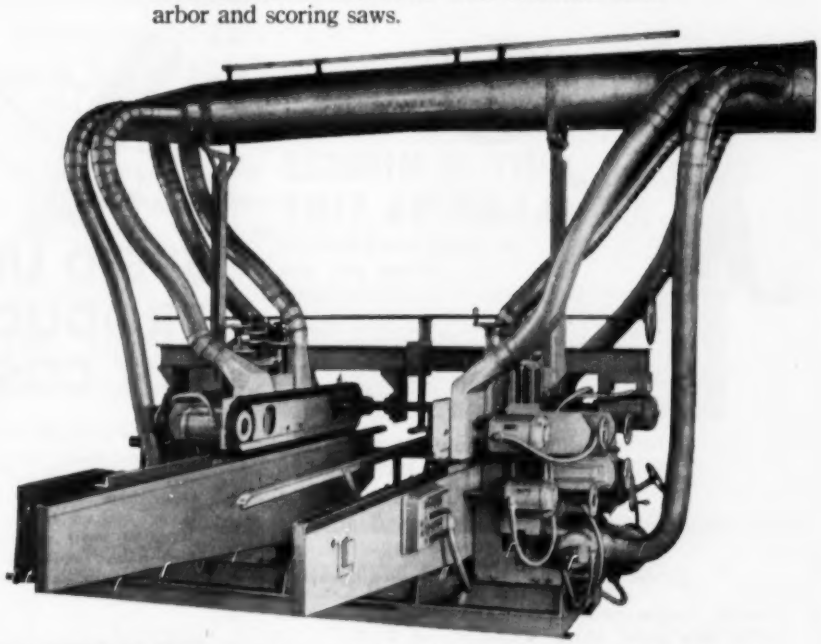
priced right for small and medium sized plants

NO. 700 **DOUBLE END TENONER**

Comes standard with trim, tenon and cope motors. Can be furnished with overhead dado arbor and scoring saws.

The basic construction for both machines includes a welded steel base, chain beams and hold-downs. More compact, they afford easy access to adjustments—minimizing shutdown time for set-up changes. Both units are fully motorized and are completely modern in every respect.

For complete specifications, write for illustrated bulletin No. 600-700



MEREEN-JOHNSON MACHINE CO.

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CUT-OFF SAWS | DOUBLE CUT-OFF SAWS | MULTIPLE CUT-OFF SAWS | GANG RIP SAWS

TENONERS | VENEER & PLYWOOD SIZERS & JOINTERS | RESAWS

CURRENT LUMBER PRICES

These prices are made available by George Land, publisher of the weekly *Hardwood Market Report*, in his copyrighted issue of April 3, 1954. For the entire list, contact Mr. Land, Box 5716, Memphis 4, Tenn.

Note: Each price change from preceding issue is marked by an asterisk (*).

SOUTHERN HARDWOODS

F.O.B. mills—Texas and Louisiana area. Estimate of present mill point average market price, to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths and lengths, rough air dried and graded in accordance with NHLA rules on inspection. Prices in dollars per M ft. On straight cars of upper bracket grades premiums are frequently being paid.

	FAS	No. 1C	No. 2C
ASH—FIRM TEXTURED			
4/4-in.	160	120	60
6/4-in.	170	125	66
8/4-in.	190	150	80
BASSWOOD			
4/4-in.	160	135	83
6/4-in.	170	135	87
8/4-in.	180	145	90
BEECH			
4/4-in.	125	100	55
6/4-in.	140	110	60
8/4-in.	167	137	72
CHERRY			
4/4-in.	220	150	90
6/4-in.	240	170	95
8/4-in.	250	180	100
RED GUM—PLAIN			
4/4-in.	205	150	75
6/4-in.	230	170	75
RED GUM—QUARTERED			
4/4-in.	220	165	75
6/4-in.	250	190	90
8/4-in.	260	200	95
SAP GUM—PLAIN			
4/4-in.	115*	95*	49*
6/4-in.	132*	112*	53
8/4-in.	150*	125*	
HACKBERRY			
4/4-in.	115	95	65
6/4-in.	142	112	75
8/4-in.	135	113	75
SOFT MAPLE—WHAD			
4/4-in.	130	110	67
6/4-in.	146	120	77
8/4-in.	155	125	80
SOFT MAPLE—WHND			
4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80
RED OAK—PLAIN			
4/4-in.	175	95*	72
6/4-in.	190	130	
8/4-in.	200	140	
WHITE OAK—PLAIN			
4/4-in.	185	105*	72
6/4-in.	200	140	
8/4-in.	205	145	
PECAN			
4/4-in.	112	92	50
6/4-in.	130	110	60
8/4-in.	155	130	65
POPLAR—PLAIN			
	FAS	S&S	No. 1C
4/4-in.	170	160	130
6/4-in.	185	175	140
8/4-in.	205	195	150
SYCAMORE—PLAIN			
	FAS	No. 1C	No. 2C
4/4-in.	115	95	60
6/4-in.	127	107	63
TUPELO—PLAIN			
TUP TEXTURE—DEEP SWAMP			
4/4-in.	115*	95*	49*
6/4-in.	132*	112*	53
8/4-in.	150*	127*	
WILLOW			
4/4-in.	135	100*	58
6/4-in.	142	122	67
8/4-in.	150	135	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area. Estimate of present mill point average market prices on sales to consuming trade on band-sawn Appalachian Hardwoods in carload quantities, random widths and lengths, rough air dried and graded in accordance with NHLA rules on inspection. Prices in dollars per M ft. On straight cars upper bracket grades premiums are frequently being paid.

ONLY 10 MINUTES CLAMPING TIME

at room temperature when you use

Quick-Setting COLPRES 10-B Urea-Resin Glue

Strong, durable joints in hardwoods, softwoods, and plastic laminates.

Plus WATER RESISTANCE

No special clamping, handling, nor ventilating equipment required.

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Please send free sample of COLPRES 10-B Glue and informative technical bulletin.

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ONSRUD CUTTER MANUFACTURING CO.
802-22 E. Broadway Libertyville, Ill.

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	170	160	115	68
6/4-in.	190	180	130	75
8/4-in.	200	190	150	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	88
6/4-in.	190	180	137	90
8/4-in.	195	185	147	96

BEECH

				No. 2C
4/4-in.	145	135	110	65
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	265	255	150	80
6/4-in.	275	265	160	85
8/4-in.	280	270	165	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	165	155	120	73
8/4-in.	170	160	135	78

CHERRY

4/4-in.	230	220	150	90
6/4-in.	250	240	170	95
8/4-in.	260	250	180	100

CHESTNUT

	FAS	No. 1C	FAS WHND	1C & B WHND
4/4-in.	170	120	137	127
6/4-in.	175	125	142	132
8/4-in.	180	130	152	142

HICKORY

	FAS	FIF	No. 1C	No. 2C
4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	170	160	90	60

HARD MAPLE

4/4-in.	205	195	135	80
6/4-in.	220	210	155	84
8/4-in.	225	215	160	90

SOFT MAPLE

4/4-in.	165	155	115	67
6/4-in.	175	165	135	69
8/4-in.	180	170	140	75

RED OAK—PLAIN

4/4-in.	185	175	120	75*
6/4-in.	200	190	140	
8/4-in.	215	205	145	

WHITE OAK—PLAIN

4/4-in.	200	190	125	70*
6/4-in.	220	210	145	
8/4-in.	225	215	155	

WHITE OAK—WHND

	FAS	FIF	C & B	No. 1C
4/4-in.	125	115	95	90
6/4-in.	150	140	120	115
8/4-in.	160	150	130	120

YELLOW POPLAR

	FAS	FIF	No. 1C	No. 2A
4/4-in.	210	200	138	88
6/4-in.	220	210	150	92
8/4-in.	225	215	155	95

POPLAR SQUARES

	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS C&up	FIF C&up	No. 1C	No. 2C
4/4-in.	370	325	180	75
6/4-in.	395	350	215	90
8/4-in.	420	375	235	95

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present f.o.b. Wausau, Wisconsin mill point average market prices to consuming trade on band-sawn Northern Hardwoods in carload quantities, random widths and lengths, rough air dried and graded in accordance with NHLA rules on inspection. Prices in dollars per M ft. On straight cars of upper bracket grades premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	155	107	75
6/4-in.	165	122	85
8/4-in.	170	132	90

BASSWOOD

4/4-in.	296	151	76*
6/4-in.	201	141	90
8/4-in.	206	151	98

BEECH

4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	296	151	81
6/4-in.	206	166	91
8/4-in.	311	181	100

ROCK ELM

4/4-in.	150	130	66
6/4-in.	160	140	76
8/4-in.	165	150	81

SOFT ELM

4/4-in.	140	120	72
6/4-in.	150	130	82
8/4-in.	155	135	87

HARD MAPLE

4/4-in.	196	131	78
6/4-in.	206	141	81
8/4-in.	216	151	82

SOFT MAPLE

4/4-in.	160	125	75
6/4-in.	175	135	85
8/4-in.	190	145	93

RED OAK

4/4-in.	186	126	78
6/4-in.	196	146	83
8/4-in.	206	156	88

PLYWOOD Manufacturers and LAMINATORS!

★1. VENEERS, Jointed Faces and Backs, Birch, Gum, Poplar
★2. VENEERS, Random Widths, Birch, Gum, Poplar
★3. CORE STOCK for Hardwood Veneer Overlay
★4. CORE STOCK for Plastic Overlay, Mahogany, Lauan, Poplar, Gum

We have them for you

With Midwest's Top-Notch SERVICE & SAVINGS!

DOOR Manufacturers!

★1. BIRCH VENEERS—Either Jointed or Random
★2. DOMESTIC PLYWOODS—Birch, Gum, Oak
★3. IMPORTED PLYWOODS—Lauan, Mahogany, Sen, White Guamba, Birchina, Poplar, Ash, Birch, Gum

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The "Missing Link" In Your Quality Control Program

QUICK FACTS

- **100% inspection of moving stock—only material within a desired moisture range passes the SENTRY**
- **Fully automatic. Continuous control. Accurate through wide moisture range**
- **Eliminates fall-downs due to moisture**
- **Dryer schedules may be adjusted to peak performance**
- **Assures better quality control**

SOLUTION of the critical moisture problems in the manufacture of a wide range of products including furniture, plywood, veneer and lumber, has been the "missing link" in the quality control program. Laucks SENTRY has successfully solved this costly moisture problem. All SENTRY equipped plywood and veneer plants report thousands of dollars saved through elimination of blow-outs and increased dryer production in many instances up to 25%. SENTRY has paid for itself in a few months in furniture plants. This new, electronic control can be installed at any point on your production line without impeding the flow . . . *scans every square inch of stock.* Write TODAY for free brochure.

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Eastern Canada Representative
THE PRESTON WOODWORKING MACHINERY CO., LTD.
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LETTERS to the EDITOR

"Some Quality, Some Profit . . ."

Editor, WOOD & WOOD PRODUCTS:

I note that comments and inquiries regarding reprints of your March 1954 editorial ("Some Quality, Some Profit —Some Don't Care") are invited. Because it so neatly puts into words the trend of our thinking it would be appreciated if you would send me about 15 reprints.

This is also an occasion to express my appreciation for the good work you are doing in the cause of wood. I find your magazine very valuable.

—C. E. Smith, Genl. Mgr.
J. J. McFadden Lumber Co., Ltd.
Blind River, Ontario

Accounting and Cost Controls

Editor, WOOD & WOOD PRODUCTS:

Please send us one copy of the book, "Accounting and Cost Controls in the Hardwood Conversion Industry," by Vincent E. Noltemeyer. (*See Jan., March and April Wood & Wood Products.*)

—G. A. Houghton, Manager
Goodman Lumber Co.
Goodman, Wis.

Kiln Drying Do's and Don'ts

Editor, WOOD & WOOD PRODUCTS:

Please send me four copies of your March 1954 issue of WOOD & WOOD PRODUCTS so that I may make disposition of them to our operating personnel. I am particularly interested in the feature, "Dry Kiln Operating Do's and Don'ts."

—W. K. Cowdery, Jr., Mgr.
True Temper Corp.
Ashtabula, Ohio.

Making Luggage From Plywood

Editor, WOOD & WOOD PRODUCTS:

It goes without saying that we were much interested and pleased with the article in your February issue, "How Modern Luggage Is Made From Plywood." Unfortunately . . . some of your readers may be misinformed on certain points, however.

While the article states that standard thicknesses range from 3/32 to 3/16 in., plywood up to ¼ in. is widely used and presents no bending problem or danger of fracturing. Further, the tops and bottoms are rarely applied with rounded corners, these corners being trimmed to conform with the bent body of the case after being attached to the body. Also, while there is no objection to a scarf 10 to 12 times the thickness of the plywood, a scarf joint of lesser length is commonly used.

It is stated that the drum or bending roll temperature is usually maintained at 200° to 300° F., whereas temperatures up to 425° are often used. The same holds true of the scarfing press.

All in all, we wish to congratulate Mr. Perry and you for bringing to your readers a most helpful article on an outstandingly successful use of plywood.

—H. H. Joseph, Jr.
Handy Mfg. Co.
Chicago, Ill.

Plastic-Laminate Finishing

Editor, WOOD & WOOD PRODUCTS:

The March issue of WOOD & WOOD PRODUCTS has a writeup about a finishing system of the Magna Products Co., Inc., and we would appreciate receiving pertinent information about this process.

—Hugo Grass, Supt.
Hermsdorf Fixture Mfg. Co., Inc.
Manchester, N. H.

Editor, WOOD & WOOD PRODUCTS:

Please furnish us with the address of Magna Products Co., Inc., Los Angeles, Calif., which was mentioned in connection with laminate finishing in your March issue.

—Don Leird
Owosso Mfg. Co.
Benton, Ark.

New Finishing Method

Editor, WOOD & WOOD PRODUCTS:

In the March 1954 issue of WOOD & WOOD PRODUCTS there appears an article entitled, "New Ideas and Equipment for Better Finishing." We are very much interested in learning more about the "Amerstain" method of finishing.

Could you please advise us to whom we should address our inquiries so that we may learn more about this and possibly do some experimenting with our piano key and action products.

—Donald K. Good
Pratt, Read & Co.
Ivoryton, Conn.

Quality Control

Editor, WOOD & WOOD PRODUCTS:

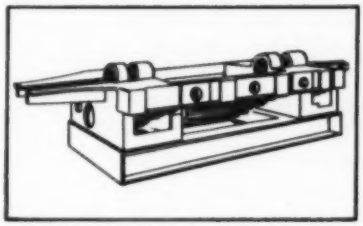
We would appreciate your sending three copies of "How to Make a Quality Control Program Pay Off," by Richard C. Calahan, in your November 1953 issue. If you have any other recent literature on the application of statistical quality control methods to the furniture industry, I would appreciate your referring me to such articles.

—R. V. Martin
Sears, Roebuck & Co.
Chicago, Ill.

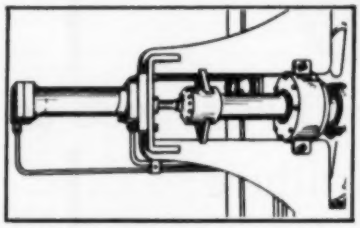
Before You Buy any Veneer Lathe

SEE JACKSON

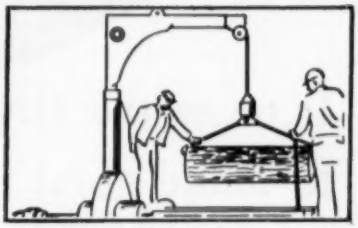
The purchase of any veneer lathe represents a substantial investment . . . before you make [illegible] investment examine the many plus features of Jackson All-Steel frame Veneer Lathes. See for yourself how Jackson will actually PAY FOR ITSELF in man hours of labor saved and increased operating efficiency. Illustrated on this page are just a few of the many outstanding features you will find on Jackson . . . many are exclusive. A letter, wire or telephone call will bring a Jackson Engineer to discuss your problems . . . there is no obligation.



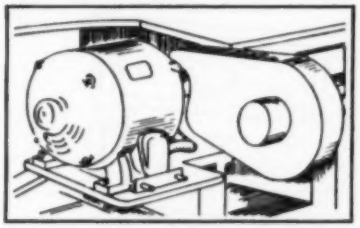
ALL-STEEL FRAME—first with Jackson the All-Steel frame construction permits operation of lathe at maximum speeds without danger of casting failure common to cast iron frames.



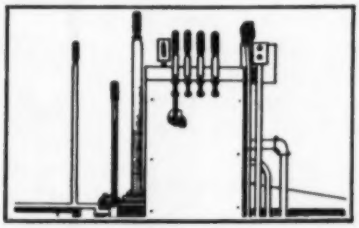
HYDRAULIC CHUCKING—another Jackson first designed for rapid engagement and release of chucks.



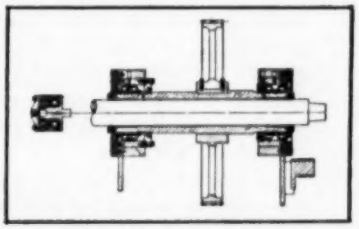
HYDRAULIC HOIST—another first with Jackson, designed for fast positive and efficient operation.



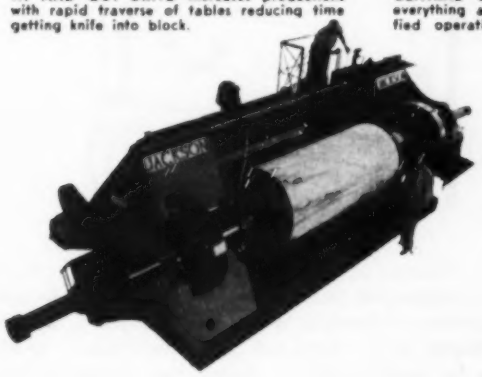
IN AND OUT DRIVE—increases productions with rapid traverse of tables reducing time getting knife into block.



CENTRAL CONTROL PANEL—operator has everything at his fingertips for fast, simplified operation.



TIMKEN BEARING EQUIPPED—the famous Timken Anti-Friction Bearings reduce wear and keep lathe working at peak efficiency. Diagram shows typical spindle mountings.



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It takes the UNSEEN as well as the seen to make good furniture

Considerable veneer is used in the construction of drawer bottoms, backing and crossbanding.

The public never sees this, but it is necessary to keep the exterior finish beautiful for its lifetime. A good stock of Oak and Mahogany veneer, ideal for drawer bottoms, is always available at Stem's.

Quarter and flat sliced Poplar, excellent for crossbands because it holds a panel flatter than rotary cut, is also available.

And don't forget, we can supply fine veneers in all the popular woods for exterior finish.

So call on Stem for both the unseen and seen veneer.

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Customers Expect More From STEM and They Get More

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VENEER and LUMBER
manufactured and available at all times

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Start Digging Your Well Now!

During the past 15 months – since publication of our widely discussed editorial, "Time to Fight for Wood's Markets," in January, 1953 – WOOD & WOOD PRODUCTS has had much to say in these pages, as have many of our readers, about various means of carrying on the industry's offensive against the inroads of competitive materials.

It's difficult to conceive of any matter that demands greater concentration on the part of management executives, companies and groups representing the industry's many segments than the problem of protecting wood's markets, of rebuilding markets that have in part drifted away from wood, and of developing new markets for the future.

We have urged broad promotional and public relations efforts by the entire wood industry in addition to the programs carried on by organized segments of the industry – oak flooring, wood windows, wood office furniture, plywoods, veneer, architectural woodwork, and the like. Market research and more intelligent and aggressive selling are other remedial "musts" that have been consistently advocated.

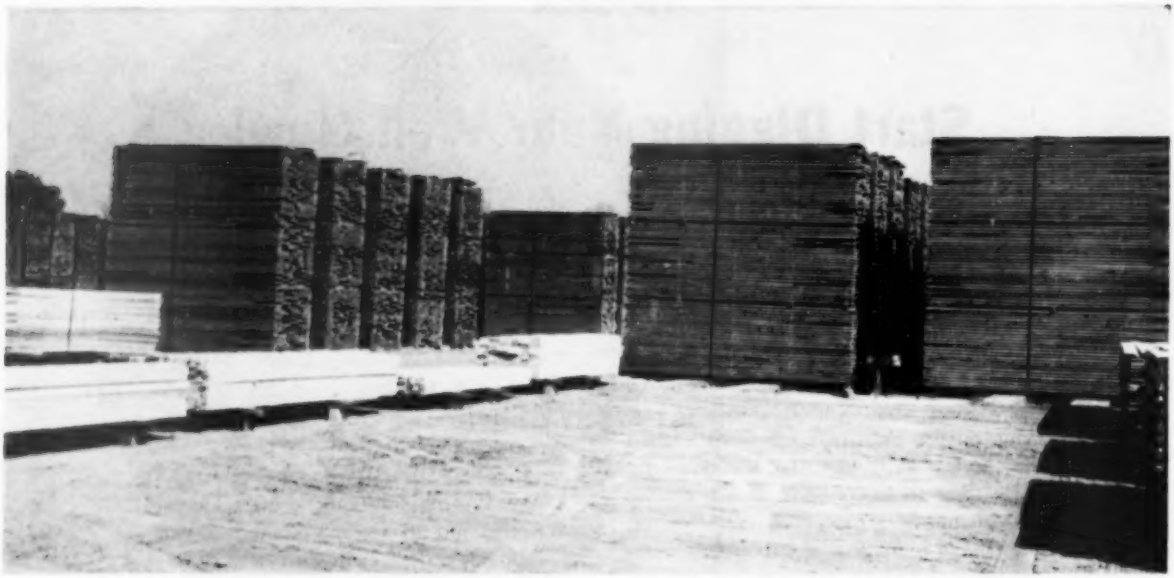
No matter what direction the discourses on wood's market fight may take, though, there always remains the basic concept that there is no sure way to protect, rebuild or develop markets if the consumer doesn't think your product is worth what he is asked to pay for it. There is no future without markets, and it's the consumer who in the final analysis makes or breaks markets. If he doesn't believe the product made of wood will do a better job for his money than that product's counterpart in plastic, metal or some other material, he won't buy it. You may be wedded to wood, but don't ever assume that the consumer cares!

So what? It may sound like "old hat," but the place to begin protecting, rebuilding and developing the wood industry's markets is right in your own plant – and the time to tackle the job is *right now*, not after some competitive material has moved in and taken a big bite out of your portion. You don't wait till you're thirsty to dig a well!

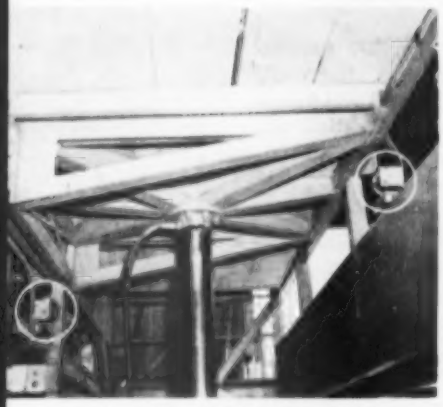
How well you succeed will depend on many factors. But you'll be well on your way toward producing *a better quality product at a price the consumer is willing and able to pay for it* if your individual "housecleaning" program calls for sound research and planning – a willingness to modernize plant and equipment – the ability to find and use better, more efficient production methods, machines and materials – better ways of training and utilizing manpower – and careful control of costs. Reduction of waste, better utilization, improvements in seasoning, handling, design, finishing and packaging, as well as new product developments – any one or all of these factors may also exert a big influence on your success, so don't ignore them.

A large order, yes. But how much better to do these essential things to gear up your business to the new, more competitive pace of the times – now, while you still have time – than to wait till your back is up against the wall. It's more costly when you wait that long, and who knows, it might be too late!

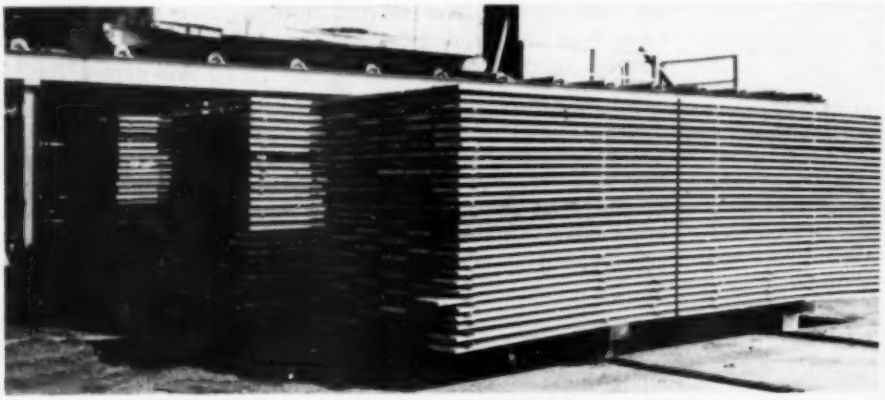
P.S.—For fresh ideas and a view of whats' new "in the flesh," try the Woodworking Industry Show in Grand Rapids, Mich., May 3-7.



1.—"TARGET LINES" are the key to precision piling and lumber handling in the yard and kiln at Ivory Pine Co., Dinuba, Calif. Trim straightness of the piles, evident above, is result of a program which unfolds itself in following photos



2.—VERTICAL Target Lines are marked on each side of sticker units as they are made up on elevator. Note 6 in. inking rollers (circled) in this view from under side of elevator



3.—NOTE the clear vertical Target Line imprinted by the inking roller on the units as they come out of the stacker. These lines appear on both sides and are used by lift truck operator in all his handling

IVORY PINE CO.'s

New "Target Line" System for Precision Lumber Handling

"Imagineering" and a daub of ink — Neat lumber stacks can be a cinch when lift truck operator can aim at a target

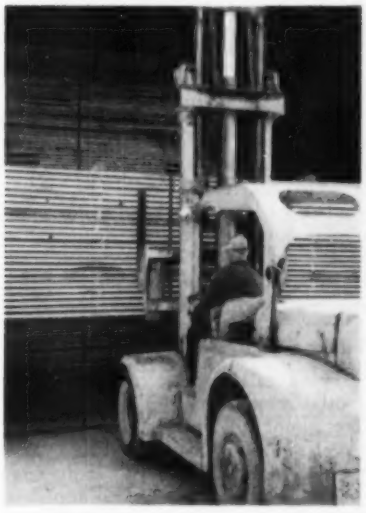
"IMAGINEERING" would be a good word to describe the way E. P. Ivory, president of Ivory Pine Co., Dinuba, Calif., runs his business. In his progressive approach to every problem, this alert operator sets an example which might well serve as a pattern for thousands of other lumber manufacturers.

Readers of WOOD & WOOD PRODUCTS will recall our illustrated article in the June, 1953, issue describing his "Piano Key Controls for Better Edging and Trimming." It told how "Pat" Ivory and his men, following the company's working rule—*"the less physical work you ask of a man, the more brain work you get"*—had developed a single edger control lever which operated on the latest electronic principles and performed nine separate functions with no more effort than it takes to play the piano. It also described similar "piano key" controls used on the company's sawmill and planing mill trimmers.

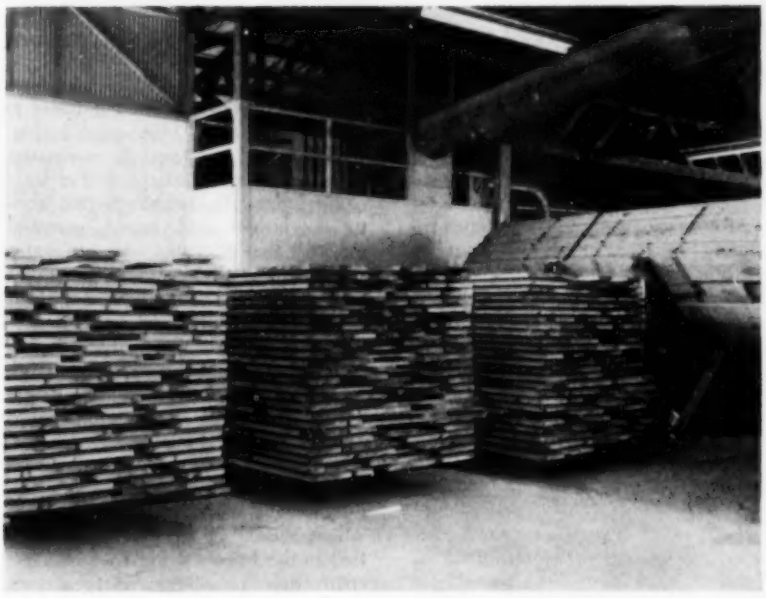
Then in the September issue came

4.—LIFT truck operator puts unit in place atop other units. Black line on lumber (top center) is exactly 18 in. from center line of unit. So is edge of vertical lift on fork lift. So is left eye of fork lift driver. So is line painted on floor of pile bottoms. How can he miss?

5.—WHAT is the result? Well, look at these piles. They go up vertically, stay straight and keep the lumber flat. They come down the same way, too, because the driver has both the line on the floor and the line on the lumber to use as a target



6.—UNIT going into dry kiln after partial air drying. Units are 62 in. high and 62 in. wide by 16 ft. long. They are piled four high within kiln and guide lines again play a major role. Of course, there are 2 or 3 lateral angles in photo, but all the black imprints are in alignment



7.—WHEN the lumber is ready to plane it is still in perfect alignment. Not only does the fork lift operator use the Target Line on the sides, but so does the carrier driver who has his own mark for positioning the straddle truck from above

the news of another forward step, the company's installation of a new press for baling mill waste.

Even in its physical plant, the Ivory Pine Co. gives evidence of the "imagineering" that characterizes all of "Pat" Ivory's operations. Not a huge plant by West Coast standards, it is still big enough to handle a volume of lumber which in 1953 approximated 19 million board feet. But it is a colorful plant. All wood frame interiors are painted in aspen green. All machines are painted bright yellow. There are no glass windows, but ample subdued lighting is provided through horizontal bands of aquamarine translucent glass fiber panels running in 2 ft. and 4 ft. widths entirely around the plant.

Now Wood & Wood Products brings you "Pat" Ivory's latest feat of "imagineering"—his new "Target Line" system of precision piling and lumber handling—the complete story of which is graphically told in the accompanying picture sequence. A vast improvement over conventional present-day methods, don't you think?—*The Editors.*

Bending . . . . . Bonding . . . . . Finishing . . . . .

Glycerine Has a Place in All Three

Industry learns glycerine is versatile—It has much to offer in improving wood's pliability, durability, beauty

By MILTON LESSER
Technical Consultant

MORE AND MORE PEOPLE are becoming aware of glycerine's value in treating wood and wood products. The uses for glycerine, as such, are increasing at a steady pace and many new applications have been found for this versatile fluid in wood processing. Even more important are the growing number of uses to which wood workers are putting glycerine-containing products, notably the synthetic resins such as ester gum and the alkyds.

Actually glycerine is not foreign to wood. In investigations reported by Swedish workers[1] it was found that different sorts of wood contained small, but definite proportions of glycerine.

From the viewpoint of practical application towards the improvement of wood products, glycerine's status stems from its unusual combination of physical and chemical properties. Many industrial uses for glycerine are based upon its superior solvent power or, because of its "body" or viscosity, its ability to suspend substances that do not go into solution.

Its low freezing point, a property that is tied up with glycerine's anti-freeze utility, is also important industrially. Conversely, because of its high boiling point, glycerine continues to serve where other materials fail.

Humectancy for Pliability

Perhaps the property of glycerine most valuable to the wood industry is its hygroscopic or humectant action. This in turn is intimately associated with glycerine's plasticizing and softening effects. It is through this ability to attract and retain essential moisture that glycerine serves to maintain requisite pliability and to combat excessive drying with subsequent cracking, brittleness and crumbling.

Scientists[2] have shown that wood is capable of absorbing glycerine, and, back in 1915, Koppe[3] reported that "Wood which has been impregnated with glycerine, obtains a high degree of suppleness, and even brittle wood impregnated with glycerine, can easily be bent without cracking, a fact which should be of great consideration to the wood worker."

In describing current practices, Koppe stated that in order to render wood more receptive to glycerine, it is well to dry it thoroughly in a kiln. While still warm, the wood is placed in glycerine or the wood surfaces are coated with the clear, heavy fluid. The glycerine is absorbed by the wood and it penetrates deeply. It is said that such treatment not only imparts the desired flexibility required to shape the wood, but that the glycerine also helps to prevent decay.

With bent wood products becoming more popular and finding new and important uses in industry, including ship building, this basic process for treating wood may well find wide application. As a matter of fact, a number of methods for seasoning, tempering and preserving wood and wood products have made use of the beneficial properties of glycerine.

In one process[4] these effects are obtained by impregnating the wood with an aqueous solution containing invert sugar, glycerine, aluminum sulfate and dextrose. In another method[5], peeled wood veneers are seasoned and made flexible by steeping the cut lengths in an aqueous solution containing formalin, chrome alum, gelatine and glycerine. The treated veneers are then mounted on suitable backing materials.

Veneer Size

This recalls the use of glycerine in another process for sizing veneers before gluing[6]. Veneer, especially thin crotch and burl, is often brittle and hard to handle when dry. It may be made strong and flexible by applying the following solution by immersion or brushing:

White glue (Casco No. 2)	1.0 part
Water	1.5 parts
Alcohol	2.0 parts
Glycerine	1.0 part

The alcohol serves to speed drying and minimize expansion, while the glycerine is used to impart flexibility. The quantity of glycerine may be varied according to the brittleness of the veneer, climatic dryness or conditions of use.

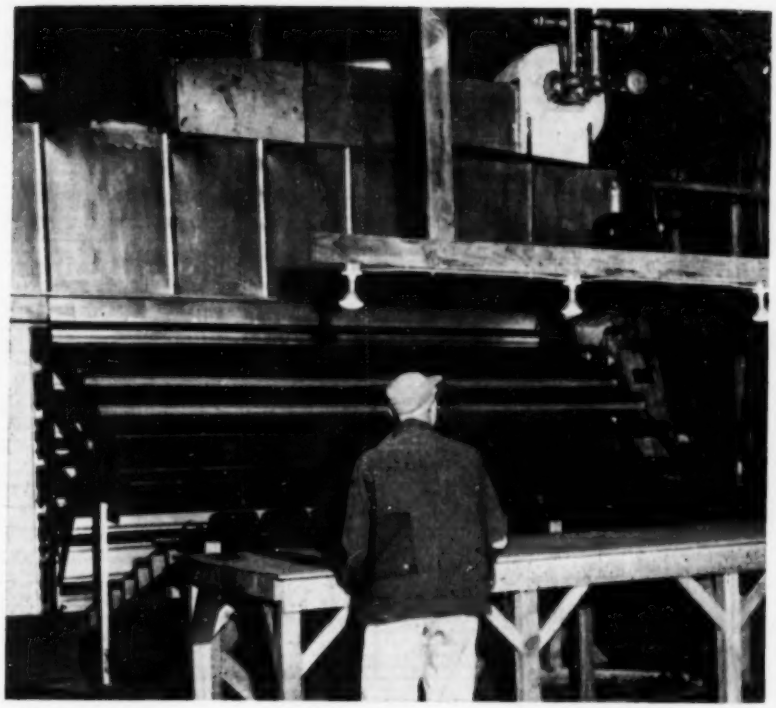
Aid in Preservation

Also worth noting is the fact that museum pieces and rare objects made

Continued on Page 68

New Dryer Speeds Plywood Production

Flexible low cost installation enables Corvallis Plywood Co. to produce 5,000 feet of sheathing per hour



DIRECT HEAT gas fired roller veneer dryer helps speed production at Corvallis, Ore., Plywood Co.

MAKING USE of a newly installed gas-fired direct heat dryer, the Corvallis Plywood Co. is now producing ⅜ in. plywood at the rate of better than 5,000 ft. per hour. This production, which totals in excess of 3 million ft. of rough sheathing monthly at the Oregon plant, is being accomplished on a roller veneer dryer six sections long and six decks of rolls high.

Contributing to the efficiency of the operation is a specially designed and developed Mater press for making 4 x 8 ft. plywood panels. The unit develops 540-ton pressure and allows simple, straight-line loading by means of two lug-equipped chains going right through the press, one chain to each side of the platen. The chains carrying the charge forward simultaneously remove the previous charge, taking it from the press onto the rolls from which it is picked up by lift truck.

The dryer includes an off-bearing section, a feed section, and also a cooling section to cool the veneer after it is dried and before it leaves the dryer. Because of the high drying rate, the feed section of the dryer has been divided and the lower three decks extended so that two dryer feeders may feed each unit of three decks.

The dryer is of the cross-circulation type so designed by the Moore Dry Kiln Co. that a split drive can be installed. When production warrants and increased capacity is necessary, additional drying sections can be installed quickly and easily at low cost.

"We wanted a flexible low cost installation," says J. A. Overgard, company president, "and it has proven satisfactory from an operation standpoint. We can start from a cold dryer and have our temperature up to 430°F. in less than an hour. Overall, the use of direct heat has proven economical, and we have been able to average more than the 5,000 ft. of plywood (⅜ in. basis) which was our goal."

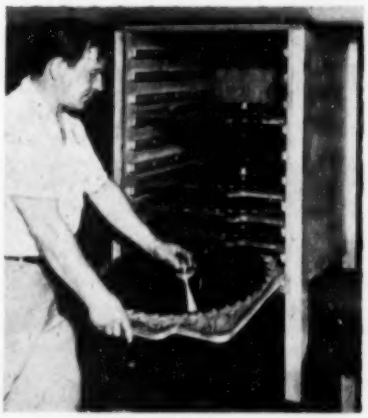
The dryer temperatures are thermostatically controlled with automatic controllers on close tolerance, but if at any time the instrument should fail and temperatures rise to the danger point the water sprinkler system will automatically deluge the dryer. This sprinkler system is designed so that it can also be operated manually.

Among other safety devices is a special control instrument which automatically shuts off the gas to the dryer if any one of the air recirculating fans within the dryer system is stopped or if the temperature increases above the set point. If gas flow to the dryer is interrupted for any reason, the burners are stopped automatically.

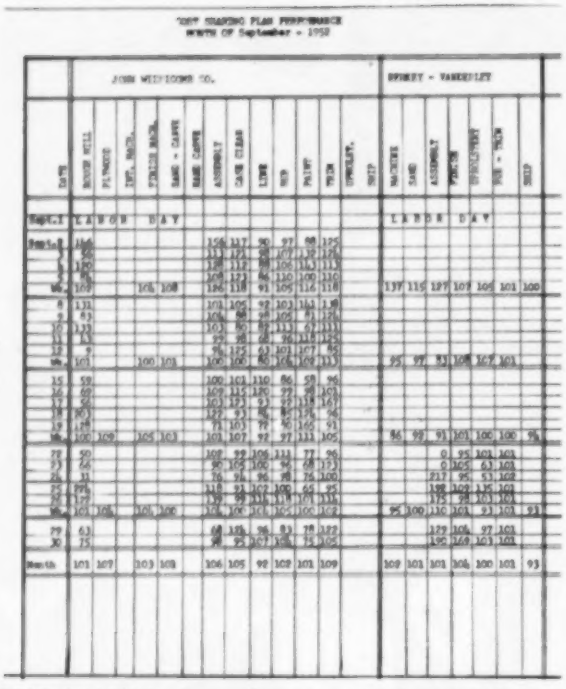
Overall length of the dryer is about 44 ft., or about 51 ft. with cooler. The width is 21 ft. and the height 18 ft. exclusive of the exhaust stacks. Two special gas burners furnish the heat and use up to six million thermal units (65 gallons) of propane gas an hour from a 17,000 gallon storage tank.

Basic Materials Exposition

Many executives in the wood industry are expected to attend the Basic Materials Exposition at the International Amphitheatre in Chicago, May 17-20, if indications from advance registrations are borne out. The show and conference lay their stress on product development, and the exhibits will emphasize the practical applications of materials, both new and conventional types. Only materials will be shown, not machinery.



THIS NEAT "cupboard" arrangement houses 20-in. carbide wood and metal cutting saws at the Switchgear Dept. of General Electric. Circular saws are bolted to a plyboard base with two washers and a nut. The nut is always tightened by hand and the entire tray (with saw) can be removed and taken to point of operation. The back of the tray has a slot 3 in. long by 1 in. high for easy carrying. This arrangement protects saw tips from any metal, provides safety in handling

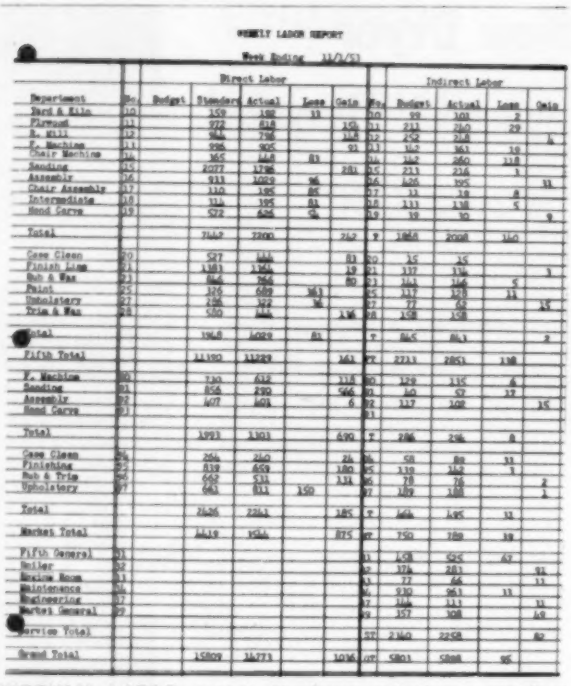


"COST SHARING PLAN PERFORMANCE
MONTH OF September - 1952

JOHN WIDDICOMB CO. | SPINNEY - VANDERLEY

DATE	ROUGH MILL	PLYWOOD	INT. MOLD.	STRAIGHT MOLD.	BAND - CARVE	BAND CARVE	ASSEMBLY	CANE CHAIR	LINE	MIX	PAINT	TRIM	UPHOLST.	SHIP	MACHINE	SAND	ASSEMBLY	FINISH	UPHOLSTERY	TRIM - PACK	SHIP
Sept.	LABOR DAY														LABOR DAY						
Tues.	146						156	117	90	97	68	175									
3	96						113	121	88	107	79	176									
4	147						124	112	94	106	103	173									
5	84						108	123	84	140	100	116									
We.	109			105	108		136	118	91	105	112	118			137	115	127	107	105	101	100
8	131						103	105	92	103	103	138									
9	63						104	88	98	105	81	126									
10	133						103	80	87	113	63	133									
11	13						99	98	87	96	118	125									
12	9						96	125	93	101	107	96									
We.	101			100	103		105	100	90	104	109	113			95	97	93	108	107	103	
15	59						100	103	110	86	98	96									
16	69						103	115	120	77	98	103									
17	56						103	123	93	98	98	145									
18	80						122	93	86	85	126	96									
19	118						71	103	97	92	105	93									
We.	100	109		105	103		101	107	92	97	111	105			86	97	93	101	100	100	95
22	50						109	99	109	111	77	96					0	95	101	103	
23	66						98	109	102	96	68	133					0	105	63	103	
24	31						76	94	96	98	76	100					217	95	53	102	
25	104						118	93	102	108	66	95					108	108	105	103	
26	117						113	98	101	114	91	101					105	98	103	104	
We.	101	105		105	106		101	104	101	105	100	102			95	100	110	101	93	103	93
29	63						68	105	96	83	78	122					129	104	97	103	
30	15						98	92	107	104	75	105					100	109	103	101	
Month	101	107		103	103		106	105	92	102	101	109			109	101	101	104	100	101	93

COST SHARING plan performance record, posted daily in most departments



WEEKLY LABOR REPORT
Week Ending 11/3/51

Department	No.	Direct Labor Budget	Standard	Actual	Loss	Gain	No.	Indirect Labor Budget	Actual	Loss	Gain
Yard & Kiln	10		159	182	23		10	99	101	2	
Firwood	11		972	818		154	11	213	240	29	
R. Mill	12		844	798		46	12	252	252		4
F. Machine	13		996	905		91	13	142	161	19	
Chair Machine	14		165	248	83		14	142	260	118	
Sanding	15		2077	1796		281	15	213	216	3	
Assembly	16		933	1029	96		16	165	165		33
Chair Assembly	17		130	195	65		17	33	18	8	
Intermediate	18		114	195	81		18	133	138	5	
Hand Carve	19		572	626	54		19	39	30		9
Total			7442	7390		752	9	1868	2008	140	
Case Clean	20		527	446		81	20	35	35		
Finish Line	21		1383	1364		19	21	137	136		1
Rub & Wax	22		842	762		80	23	161	146	5	
Paint	23		305	689	384		25	147	125	11	
Upholstery	27		186	322	36		27	72	62		15
Trim & Wax	28		580	446		134	28	158	158		
Total			1963	4029	81		7	845	863		2
Fifth Total			11190	11229		141	97	2713	2851	138	
F. Machine	30		730	632		118	30	129	135	6	
Sanding	31		856	730		546	31	40	57	17	
Assembly	32		607	601		6	32	117	102		15
Hand Carve	33						33				
Total			1993	1303		690	7	286	294	8	
Case Clean	24		264	240		24	24	66	88	33	
Finishing	25		839	659		180	25	139	140	1	
Rub & Trim	26		662	531		131	26	78	78		2
Upholstery	37		661	811	150		37	129	129		1
Total			2426	2241		185	7	412	435	23	
Market Total			1419	1544		875	37	750	789	39	
Fifth General	01						01	148	695	47	
Boiler	02						02	174	183		91
Engine Room	03						03	72	64		11
Maintenance	04						04	930	961	13	
Engineering	07						07	144	133		11
Market General	09						09	157	108		49
Service Total							57	2160	2258		82
Grand Total			15809	15773		1036	07	5801	5888	95	

WEEKLY LABOR report. It shows actual vs. standard direct labor, also actual vs. budgeted indirect labor

Here's System That Controls Production Costs at Widdicomb

Can these forms, with variations, help control costs for you? A. H. Stuart says they save thousands yearly

REPRODUCED here is the first page of the article in the April issue of WOOD & WOOD PRODUCTS in which A. H. "Sandy" Stuart, executive vice-president of John Widdicomb Co., advocated modern methods of production cost controls. Here and on the opposite page he offers samples of the standard and actual cost system charts and budget reports used in various departments at his plant.

As "Sandy" stated in his April article, "Cost accounting, in the last few years, has changed as radically as our manufacturing processes." Since the system used at Widdicomb saves thousands of dollars yearly, other management men may wish to study these charts to see how they may apply them or similar ones to their woodworking operations.

With variations, the same system could be used as well in any type of cabinet making plant, in millwork operations, by producers of dimension stock or veneer. From sawmill to any of the operations employed in processing an ever increasing number of wood products it is imperative today to know and control costs in order to survive and prosper in a competitive market.

As "Sandy" pointed out, "A budget is not an easy thing to set up. It can't be done overnight, nor can it be done in a week. It has to be done in very intricate detail and it must be revised and kept up to date constantly. In fact, before a budget is really sound and operative, probably two or three years will have passed. But even during that time substantial savings can be realized."

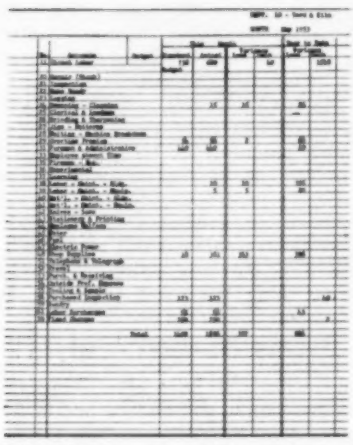
He also stressed that every department should have its budget—"not only all the production departments but also all of the indirect departments such as general plant, boiler room, power, maintenance, planning, design, drafting and sample, payroll, standards, purchasing and sales."

It will be noted here that reports from most production departments are submitted daily. There are also weekly labor reports showing actual vs. standard direct labor and actual vs. budgeted indirect labor. Complete budget reports are submitted monthly from all departments.

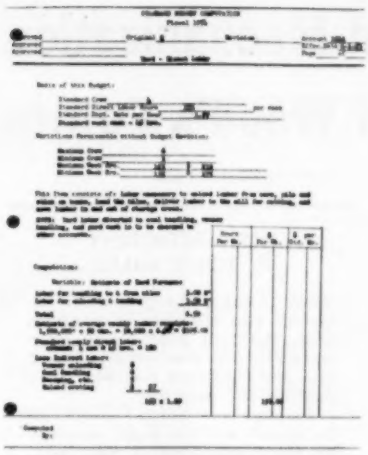
From these the monthly manufacturing statement is compiled, showing standard cost of material used against the actual cost of material; standard cost of labor used against actual amount paid; and finally, the standard manufacturing expense against actual manufacturing expense—the profit and loss statement.

How Production Controls Save Widdicomb Thousands Per Year

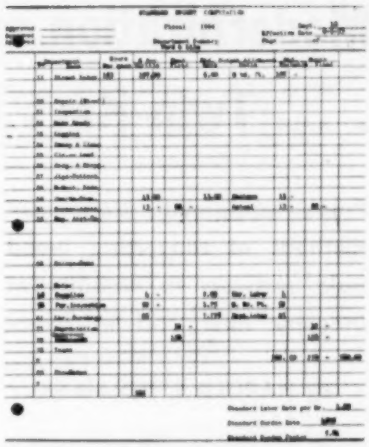
ARTICLE, reproduced from April W&WP, tells system in detail



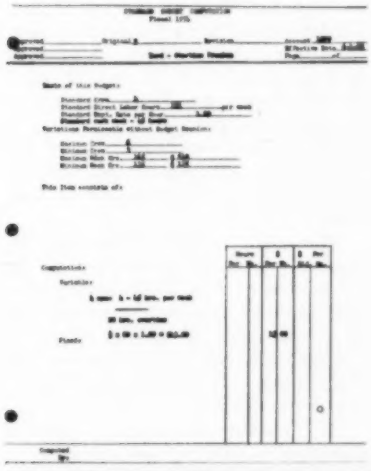
SUMMARY work sheet, typical of kind used in each department



HOW department budget is made up, this one for Yard—Direct Labor



DEPARTMENT budget for Yard & Kiln is submitted monthly



LEFT — Typical sheet breaking down budgeted items to arrive at budgeted figure

RIGHT — Manufacturing statement, comparing actual vs. standard material, labor and manufacturing expenses

John Widdicomb Company
Grand Rapids, Michigan

FIFTH ST. — FIFTH ST.

Month JUNE 1953		Manufacturing Statement		Year to Date June 30,1953
		Cost of Goods Produced		
		Standard Cost of Goods Produced		
	58,035.89	Material	58,035.89	
	47,664.45	Labor	47,664.45	
	50,408.30	Manufacturing Expense (105)	50,408.30	
156,108.64				156,108.64
		Actual Cost of Goods Produced		
	58,295.68	Material	58,295.68	
	48,276.02	Labor	48,276.02	
	49,098.23	Manufacturing Expense	49,098.23	
155,669.93		Total Cost of Goods Produced		155,669.93
		Manufacturing Variances		
	176.73	Purchase Price	176.73	
	118.86	Material .20%	118.86	
	1,178.43	Labor 2.17%	1,178.43	
	1,320.16	Manufacturing Expense 2.62	1,320.16	
2,438.73		Total Variances 1.56% of Standard		2,438.73

Mechanization Halves Lumber Handling Costs at Bridal Veil Plant

HANDLING DIMENSION STOCK and finished stock at one-half the former cost has been achieved by the Bridal Veil Lumber & Box Co., Bridal Veil, Ore.

This was reported recently by Clyde Hambrick, the plant's box and cutting department foreman. He said this saving has been accomplished through use of two operator-led, battery operated industrial trucks. Hambrick also pointed out that a change-over to mechanized handling has eliminated lost time due to "strains and sprains" of former manual handling methods.

Bridal Veil, which produces stock cut dimensional lumber for door jambs, window frames, and moldings, uses the electric trucks in two distinct operations:

1. To handle palletized loads of processed lumber, transferring them from production to storage and shipping.

2. To service its production machinery, maintaining a maximum flow of materials. This eliminates lost time which may result when the machines are forced to wait for loads, Hambrick said.

Hambrick added that the trucks have proved suitable for work in areas immediately adjacent to the loading areas where wooden floors, subject to outside weather, may be slick from melted snow or rain. Before mechanization, when heavy loads were moved by hand, the slippery flooring often submitted product handlers to unnecessary risks, he said.

Both trucks perform identical tasks in handling, moving and storing processed lumber. The weights of unit loads vary from 1,500 to 2,000 lb., depending on the nature of palletized products.

OPERATOR-LED electric industrial truck brings a palletized load of lumber from stocking area to a production machine at Bridal Veil Lumber & Box Co. Use of trucks has cut by 50% the cost of handling dimension and finished stock

Modernization and Mechanization . . . Twin Keys to Wood's Future

Proper equipment, economical methods of converting wood hold answers to stability of industry now and in future

By HAROLD E. HOLMAN*

THE POSITION that lumber and lumber products occupy in the field of production has been attained because of the availability of production machinery, and we can only meet the changing demands and the encroachment of substitutes by improved methods of converting the raw material to needed end-products. The technological improvement in the field of production has not kept pace with changes that have taken place in the cost of production and changing markets.

It may surprise many people to learn that small or intermediate sized sawmills in the United States produce more than 50% of the total lumber, and that these mills represent almost 98% of the total active sawmills in the country. According to the last Census of Manufactures there were 53,109 active sawmills in the United States which produced 35.4 billion bd. ft. of lumber. The astonishing thing is that 47,538 of these mills had an average annual production per mill of 191,000 bd. ft.; but the aggregate production of these mills was 9.1 billion bd. ft., or 25.7% of the national production.

Add to this group of mills those that had a rated capacity of 1 to 5 million bd. ft. per year and we account for 52,000 mills. We therefore find that mills with rated capacity of 5 million bd. ft. and less account for 51.1% of our lumber supply. Carrying it just a little further, slightly more than 1,000 mills produce more than 5 million bd. ft. per year but account for 48.9% of our production.

The location of mills is governed by the location of timber, and the type of operation is governed by the species and types of timber. The type of operation determines or at least influences the type of machinery used in every phase of production.

The total number of mills in the West was 4,961 in 1947. They produced 16.336 billion bd. ft. of lumber. The combined 48,148 mills in the East and South produced 19.068 billion bd. ft.

From the foregoing it is evident that small sawmill operators have made a substantial contribution to the national lumber supply and have been a significant factor in providing employment in the various producing regions. Because of the size and nature of their operations they are widely scattered and do not react quickly to national market conditions.

A significant fact is that most of the small mills have no facilities for kiln drying; no finishing machines, such as planers and resaws; and in many instances they lack adequate facilities even for suitable air-drying. Lumber as it leaves the small mills is usually in a rough-green state. Some is partially air-dried, but seldom is it sufficiently seasoned to meet the requirements of construction or industrial consumers. The bulk of the lumber must be further processed before it can flow through market channels to its ultimate end-use.

In 1942 the mills in the West with a rated capacity of 50 million feet or more produced 43.7% of the total western cut. In 1947 the mills in this category produced only 23.9% of the western cut. Preliminary figures indicate the transition is still in the same direction but at a slower pace. The same thing has taken place in the East and South, but not so rapidly.

Probably the principal factors contributing to this transition from large to smaller mills have been changes in timber supply and quality, and in distance from the processing plant; competition for the higher grade logs in markets other than lumber, and inability to secure sufficient volume of timber to warrant a heavy capital investment for larger volume production over a considerable period of time. Another factor has been the cost of transportation of logs.

The factors that have caused the change are still present and will unquestionably be present for a long time.

The main factor influencing continuous profitable production is the maintenance of a stable market that will provide a margin between cost of production and selling price and requires the efficient production and distribution of quality products at competitive prices.

The volume production of most of the smaller mills is not sufficient to warrant the capital expenditure for equipment for the refinement of their lumber or for manufacture of the finished end-product.

This situation has created, and probably will continue to cause, some serious distribution and marketing problems. To overcome the deficiencies of rough-green lumber, development of other activities has been stimulated. Many large producers have become processors or refiners of lumber originally sawed outside their own plants.

Probably the bulk of the very small producers have found it possible to stay in the field only because the large producers, the concentration yards, the warehousing wholesalers, and even a number of retail yards have been willing to accept this partially manufactured lumber and further refine it to make it acceptable in the various market channels.

It seems certain that few of these more than 47,000 sawmills could continue to exist without those services. The development of the small mills and their continued operation are almost entirely dependent upon the

HOW EFFICIENT IS YOUR MILL?

What is the daily proportion of lumber you are able to produce from the logs that reach your sawmill? Are you satisfied that you are obtaining maximum production per man day?

Perhaps you haven't bothered to search out the exact answers to these questions in your mill. Perhaps the very fact that your profit margin is slim scares you from investigating a condition which may call for capital outlay in new machines and methods.

If this is the case, Mr. Holman has a message for you. He tells you what to look for in order to modernize your present operations, how greater utilization through use of proper machinery will increase your profits, how you, your employees and the entire community can prosper.

All of us haven't learned to live with the lower quality of log and lumber which is our lot today. Yet more and more producers are learning such practices as making narrow and thin lumber from the exterior of small logs and cutting to odd inch and random widths. They have left no stone unturned in their quest for maximum efficiency. They have modernized their mills, methods and their very attitudes.

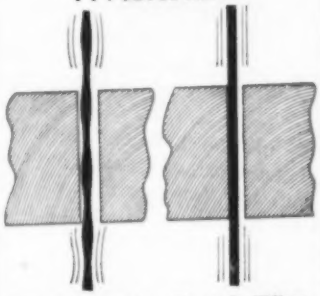
Have you done likewise?

*See "Wood Salutes," Page 74.

"Check this PROFIT STATEMENT"

UNIFORM THICKNESS OF SIMONDS WIDE BAND SAWS

eliminates saw flutter . . . saves kerf

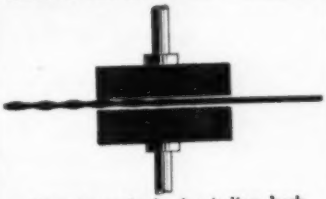


Saw that is not uniform in thickness will flutter as it runs over the guides and cut a wider, rougher kerf.

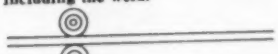
Simonds "Micro-Check" Ground Saw rides smoothly over the guides, eliminates flutter, saves kerf, cuts smoother lumber.

SIMONDS "Micro-Check" Grinding

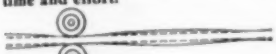
insures uniform saw thickness



Simonds method of grinding both sides of the saw at the same time insures uniform thickness throughout, including the weld.



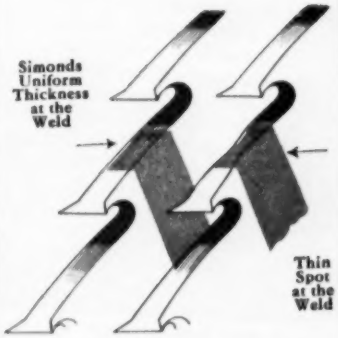
The uniform thickness of a Simonds Saw makes tensioning easier, saves time and effort.



Saws of uneven thickness take more time and effort to tension, run poorly.

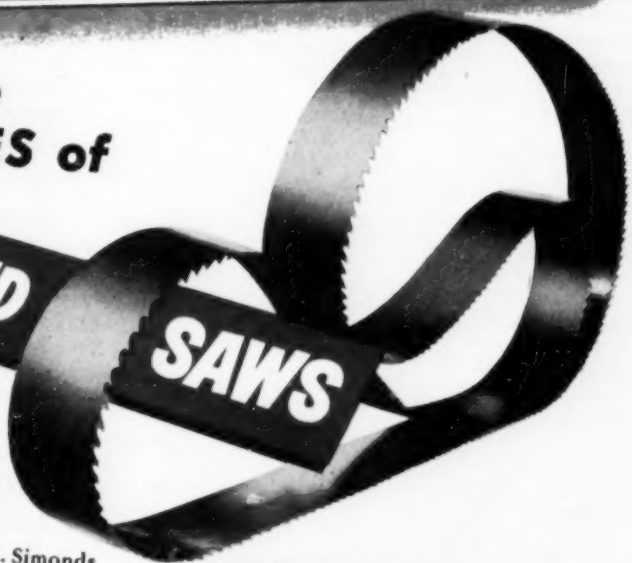
SIMONDS "Micro-Check" Grinding

prevents a thin tooth at the weld



Thin spots or soft, short teeth, which cause a rough or scratched finish, are eliminated by Simonds Method of grinding.

...See how these FEATURES of SIMONDS WIDE BAND SAWS mean more money for YOU!



Only a SIMONDS SAW gives you the benefit of Simonds Steel (famous for its toughness and edge-holding qualities) . . . Simonds "Micro-Check" Grinding (originated and perfected by Simonds Engineers to insure uniform saw thickness and tension) . . . Simonds "know-how" in saw manufacture (acquired through years of experience in making band saws and in working with sawyers, filers and mill operators in all parts of the country to develop the best possible saw for their needs). Make your next saw a SIMONDS and prove to yourself that "SIMONDS SAWS ARE THE BEST"! Order through your Industrial Supply Distributor.

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existence of remanufacturing plants. As prices have stabilized and the spread between cost of production and selling price has become thinner, this dependence has probably become even greater.

The efficiency and effectiveness of this processing will be dependent upon further machinery design and the installation of efficient machines in lumber processing plants strategically located to handle lumber more economically.

I do not believe there is any great opportunity to get a material reduction in the cost of stumpage. I don't think there is any possibility or, at the present level of our economy, any justification to figure on lower hourly wages for labor. The nature of the timber has done much to reduce the volume production per man employed.

I don't think there is any possibility to get any reduction in the cost of capital equipment and maintenance supplies. The only escape hatch available is *more complete mechanization*, and when I say complete mechanization I also mean further attention given to the design of new and better machines. I don't think any operator would complain about paying more for machines that had a longer life, greater production capacity, lower maintenance and operating costs.

We are not going out of the lumber business. We are cutting timber at about the same rate as we are growing it, but it is necessary that the manufacturers of machinery recognize the changing complexion, the stature, and the contents of the raw material that we must deal with in the future.

There is a tremendous number of producers who are not aware of the existence of certain types of equipment, and another large group of operators who, while they may be aware of the existence of the equipment, have not been convinced of its potential value and the possibilities that are available for reducing costs.

In 1912, when I took my first job in a sawmill on the Pacific Coast, we were dealing with large-size logs, with a high-grade conversion value of clears, selects, structural material, No. 1 shop, and dimension. I distinctly remember one time many years ago when we loaded 2⅝ million feet of what we called random stock on the old John A. Hopper and received for it a marvelous price of $4.50 per m. f.a.s.

Labor was cheap, stumpage was cheap, machinery was cheap, transportation was cheap, and the consumer found it impossible to buy and use lumber for even the most mediocre purposes. Mills were designed and built to handle logs of high quality and large size. Most of them were powered with old steam-driven engines. Some of those engines are still in use. Some of the original production machinery is still in use.

Many of the sawmills in this country were designed to convert the type of log that was available 20 and 25 years ago, and many of those mills are still operating with the same machines. The thing that astonishes me when I visit some of those mills is the insignificant amount of attention that has been given to the matter of changing manufacturing techniques to meet changed conditions by replacing old, obsolete equipment with new, modern and efficient equipment, and the equally small amount of attention that has been given to mill layout.

The mill described in the accompanying box—and there are hundreds in the country like it—cannot con-

Continued on Page 46

HOLMAN CITES AN OWNER WHO MISSED THE POINT

On a recent trip west I visited one particular plant that was built in 1921. At one time I worked in this particular mill. In 1921 we were processing logs of an entirely different type than the mill is using today. It was not uncommon to get 40 ft. logs that scaled 72 in. on the small end, and it was not uncommon practice to open the swifter sticks in the boom and shove into the river stream logs even as large as 24 in. and 30 in. on the small end. The mill was designed, built and equipped with the type of machinery necessary to handle the maximum sizes of logs then available. Logging equipment was installed to log such material.

Today it is very infrequent that this mill gets a 4 ft. diameter log on the carriage. More money can be made by selling the large clear logs to plywood plants. This means that the size and quality of the log and the grade conversion value are much lower.

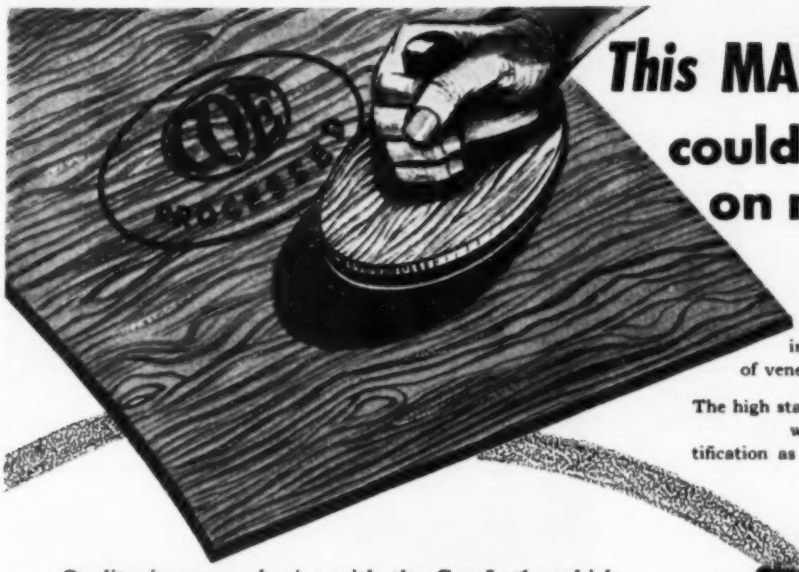
In October, 1952, this mill had the same log deck, the same log turner, the same headrig and, as far as I could observe, the same speed on the rollers, the same edger and the same trimmer. The dry kilns were the same old progressive type with steam breaking through the doors and roof. The remanufacturing plant had one self-feed planer, the rest were manually fed and slow speed. In fact the plant was badly in need of modernization.

However, I noticed several of the most modern logging trucks that money could buy going into the dump with their loads. Everything had been provided for the efficient handling of raw material. The lumber handling equipment in the yard included straddle trucks and lift trucks.

Because I had known the owner over a considerable period of time, I had the courage to ask him why he did not continue to use old chain-driven trucks with hard tires, pole trailer, and the same kind of unloading device that he had back in 1921. Also, why he didn't use horses and lumber buggies to move the lumber from the green chain to the yard or shipping shed. He looked at me with an expression that was far from complimentary.

I then pointed out why I had asked the question. He had made no particular attempt to carry forward the same modernization program in his sawmill, his planing mills, or his dry kiln. I asked him if he remembered what his production per man day was back in the 20's. He said that he believed it was somewhere between 1,800 and 2,000 ft. per man per day. Then he added that his production per man per day on the present basis of operation was less than 800 feet.

Unquestionably the modernization of his logging operation had gone far in absorbing part of the increased cost of lumber production, but I could not help wondering to what extent he could have reduced his costs had the same attention been given to the modernization of those departments concerned with the converting of log to finished lumber.



This MARK OF QUALITY could well be on millions of feet of veneer . . .

Coe machines—pioneers in the industry—have processed millions of feet of veneer since their introduction in 1852.

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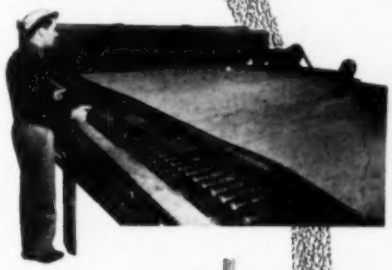
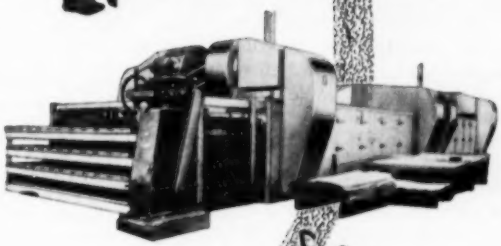
Quality in veneer begins with the Coe Lathe which maintains tightness and accuracy of cut regardless of the size of the log or the kind of wood being processed. Are you familiar with the latest model Coe Lathe available for your industry?



The next step in veneer manufacture is clipping. Clipping requirements vary greatly with the particular product. Coe has devoted much time and attention to the development of machines that will perform their function in the best possible manner. We are ready to discuss your particular problem.



High efficiency in drying is attained as the clipped sheets pass through the Coe Continuous Dryer. Its specialized operation avoids direct loss due to splitting, buckling, discoloration or marking and indirect loss from molding, overweights, checking, etc. Danger of case-hardening is also avoided and flat, pliable stock produced.

For best results lathes and clippers are largely dependent upon keen, properly beveled knives. These are maintained in top condition in many plants with Coe Automatic Knife Grinders. They are fast, accurate and dependable.

The COE Manufacturing Co., Painesville, Ohio

BUILDERS OF VENEER MACHINERY SINCE 1852

ABOVE (Photo B)—Universal angle boring machine with both heads tilted.
LEFT (Photo A)—This gang borer bores 16 holes with one quick stroke

Modern Machines Bore Holes by the Wholesale

If you need to bore up to 100 holes at once — Any size, direction, depth or location — Here is how multiple boring machines can help you

By THOMAS D. PERRY

IT TAKES a lot of push on a bit brace to bore a single ½ in. hole in an oak board, as home carpenters will readily admit! Until small electric motors became practical there wasn't much that anyone could do about it. Now the portable electric drill, the upright drill press and the horizontal chuck in a lathe, will do the same job more quickly and with little effort, but only for one hole at a time. It is an interesting story to reveal how 25, or 50 or even 100 holes can now be bored simultaneously by a single push button.

Ingenuity and resourcefulness have now developed multiple or gang drills that will bore many holes at one stroke, of various sizes, to different depths and in an almost unlimited arrangement over substantial areas. The holes may be vertical, or horizontal, or at an angle, with several combinations of directions. Accuracy as to size, direction, depth and location are essential, and modern gang boring machines assure uniformity for every hole, from the first to the last bored member.

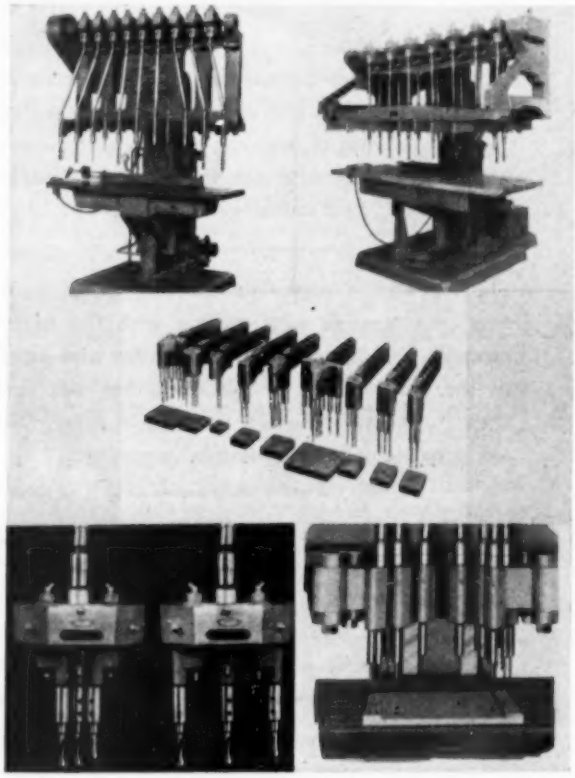


FIG. 2 (upper left) — Multiple borer with universal joint spindles. FIG. 3 (top right) — Double beam multiple borer with universal joint spindles. FIG. 4 (lower left) — Adjustable 3-spindle heads, left closed, right open. FIG. 5 (center) — Fixed cluster heads. FIG. 6 (lower right) — Single spindle and fixed cluster heads

Such mechanisms found their heyday in the era of wood frame and metal covered automobile bodies. The door frames, or even the doors themselves, were usually curved in at least two directions, and were often made from 8/4 and 12/4 lumber. The respective angles usually required for the various dowel and pin holes were a veritable geometric puzzle. That era is now long past, but the multiple spindle borer is a most useful piece of equipment in the making of chairs, case goods, tables, pianos or many fantastically shaped ship timbers,

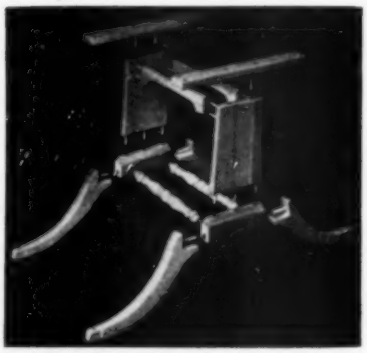


FIG. 1—Duncan Phyfe table, expanded

with their various degrees of curvature and camber.

An example of the extent to which the boring of holes is essential in present-day furniture is shown in the expanded photo of the base of a Duncan Phyfe pedestal table, Fig. 1. This illustrates "blind" boring to accurate depth, and demonstrates the reliance of the furniture maker on unseen but sturdy dowels to produce attractive designs of maximum strength.

There are two fundamentals in nearly all of these multiple spindle borers: (1) What might be called the major driven spindles, which will rotate a single bit or drill, and (2) The cluster or group of rotating drill holders, driven from the single major spindle above, but transmitting the rotation to each of the several sub-spindles.

Such clusters with two, three, or sometimes four sub-spindles may be adjustable within limited distances. However, most clusters for driving sub-spindles are custom-made to fixed center dimensions, although the diameter and depth of the holes may be varied.

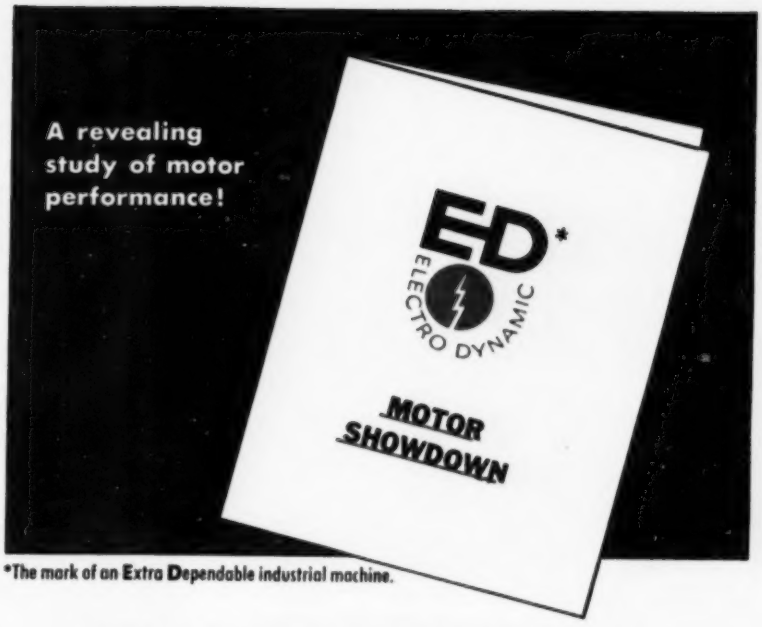
The major types of these multi-spindle borers fall into three general classifications, based largely on the direction of the hole, whether vertical, horizontal or at various angles. They are:

Gang Multiple Borers with Vertical Bits. These bits are mounted on telescopically extendable stems with universal joints. All bits are motor driven, under pushbutton controls, through splined shafts. The feed of the wood into the drills may be hydraulically or mechanically elevating work tables. A less important variant of this type is the straight-line multiple borer, in which the universal joints and telescopic extensions are eliminated.

Gang Multiple Borers with Horizontal Bits. These operate in a single horizontal plane, except when special heads or clusters are attached. Each primary spindle has its individual motor, and the motor-driven spindles are fed into the wood by mechanical devices.

Gang Multiple Borers with Angularly Adjustable Bits. The bit heads can be swung in either direction in the horizontal plane, or can be tilted up or down in the vertical plane, or both. There are two types of these machines, both of which offer a wide range of angular adjustments. The bits are moved into the wood by air pressure while it is rigidly clamped in place.

Each maker of multiple boring machines may have added supplementary devices that provide special advantages in certain classes of work. Among



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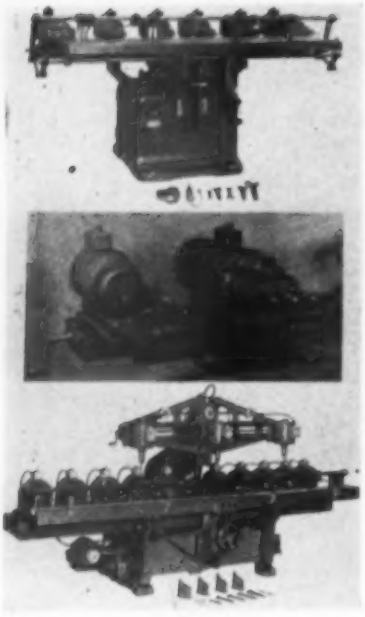

FIG. 10 (top) — Multiple horizontal borer with six special heads. FIG. 11 (center) — Standard single tilt and triple "in line" heads. FIG. 12 (below) — Auxiliary bracket for vertical holes

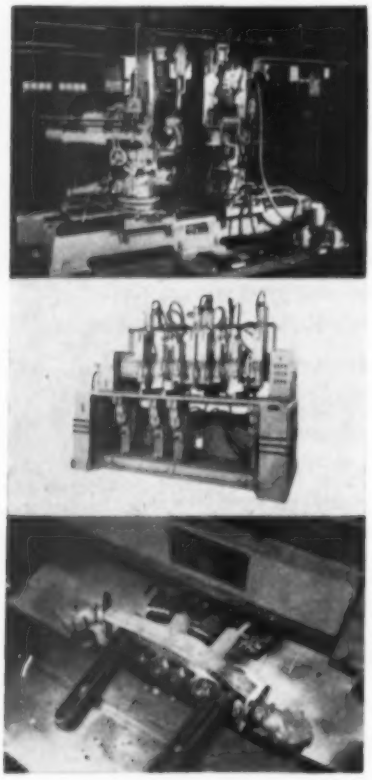

FIG. 13 (top) — Universal angle boring machine with columns at 45 degrees. FIG. 14 (center) — Universal angle boring machine, horizontal and vertical. FIG. 15 (bottom) — Set-up for 2-way boring and cut-off

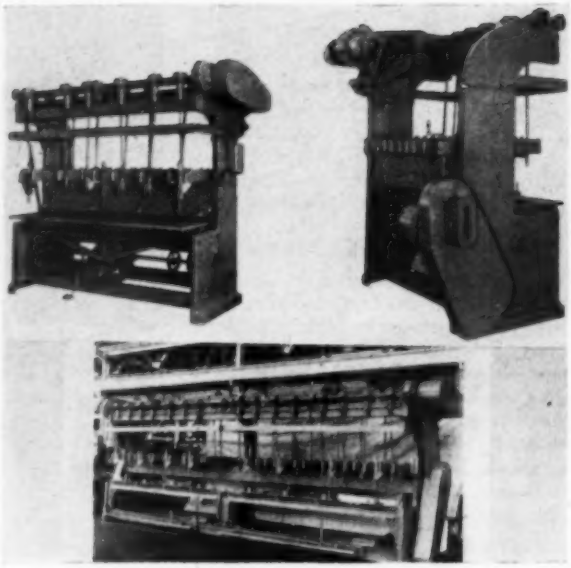

FIG. 7 (upper left) — Universal joint gang borer with two drive shafts. FIG. 8 (upper right) — Rear view of same borer. FIG. 9 (below) — Universal spindle gang borer, 16 ft. long items to arrive at

these auxiliary devices are bevel gear saw heads for cut-off work, and chucking heads for dowel ends, as on stretchers or posts in furniture. As a general rule, these can be attached to the major boring spindles in various positions.

Many boring jobs can be done on any of the machines mentioned. In other cases, one machine may be adapted more adequately to some special or exacting task.

In covering the wire variety of multiple boring machines here, space will not permit mention of more than important auxiliary features, but readers may rest assured that, in the hands of a skillful mechanic, all of these multiple spindle borers exhibit a remarkable degree of versatility.

Vertical Spindle Borers

Most of these machines have an intermediate telescopic stem between the drive shaft and the bit holder, provided with a pair of universal joints so that the bit holder can be moved in and out, and will swivel to the right and left. A basic type is illustrated in Fig. 2, which has nine universal extendable spindles rotated from a splined shaft at the top, driven by an electric motor and "V" belts. The table, with back and end gauges as shown, moves up into the wood by means of hydraulic devices. The hold-down clamp rods, adjustable vertically, are indicated between the third and fourth spindles from each end, and clamp the wood firmly just before the bit starts cutting.

This machine has a 6-ft. table, but standard sizes are 4, 5, 6 and 8 ft., with as many spindles as can be accommodated on the single splined shaft. Special machines have been made as long as 20 ft., with 30 spindles or heads. All standard machines have an in-and-out adjustment range of 12 in., so that the effective area within which holes can be bored is 12 in. by the table length, plus a few inches more on each end.

Another type of this machine, shown in Fig. 3, has an additional front beam, so that an extra row of spindle arms may span a width of 22 in. This double beam machine, in an 8-ft. table length, will have a maximum capacity of 36 major spindles in an area 22 in. by somewhat more than 8 ft.

It is also available in 4 and 6 ft. lengths. In this type there are two interconnecting drive shafts providing for front and rear rows of boring spindles. Each single spindle assembly is driven through a pair of spiral gears, running in grease, from the splined shaft. The telescopic stem, with a universal joint at each end, terminates at the spindle arm, which is slotted for adjustment on the front or rear cross frames.

Adjustable cluster heads for three bits are illustrated in Fig. 4. This 3-spindle cluster comes in several sizes with hole centers ranging from ¾ to 3¼ in.; and there are similar 2-cluster heads with ranges between ⅞ and 7 in.

Several types of fixed cluster heads are illustrated in Fig. 5. These are custom-made for special requirements. A set-up with a group of single spindles and fixed cluster heads is shown in Fig. 6. One of the larger special cluster heads was built to drill 25 one

Continued on Page 35

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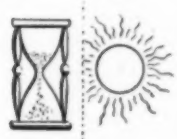


LONGER STORAGE . . . keep up to 6 months at 80°F., over 3½ months at 90°F.

EASIER CLEAN-UP . . . washes off mixers and spreaders with minimum effort.

Now you can get all the advantages of Borden's outstanding high-solids CASCO-RESIN 5H . . . in intermediate and lower solids-content ranges . . . from 65% to 45% . . . for tank-car, tank-truck and drum delivery.

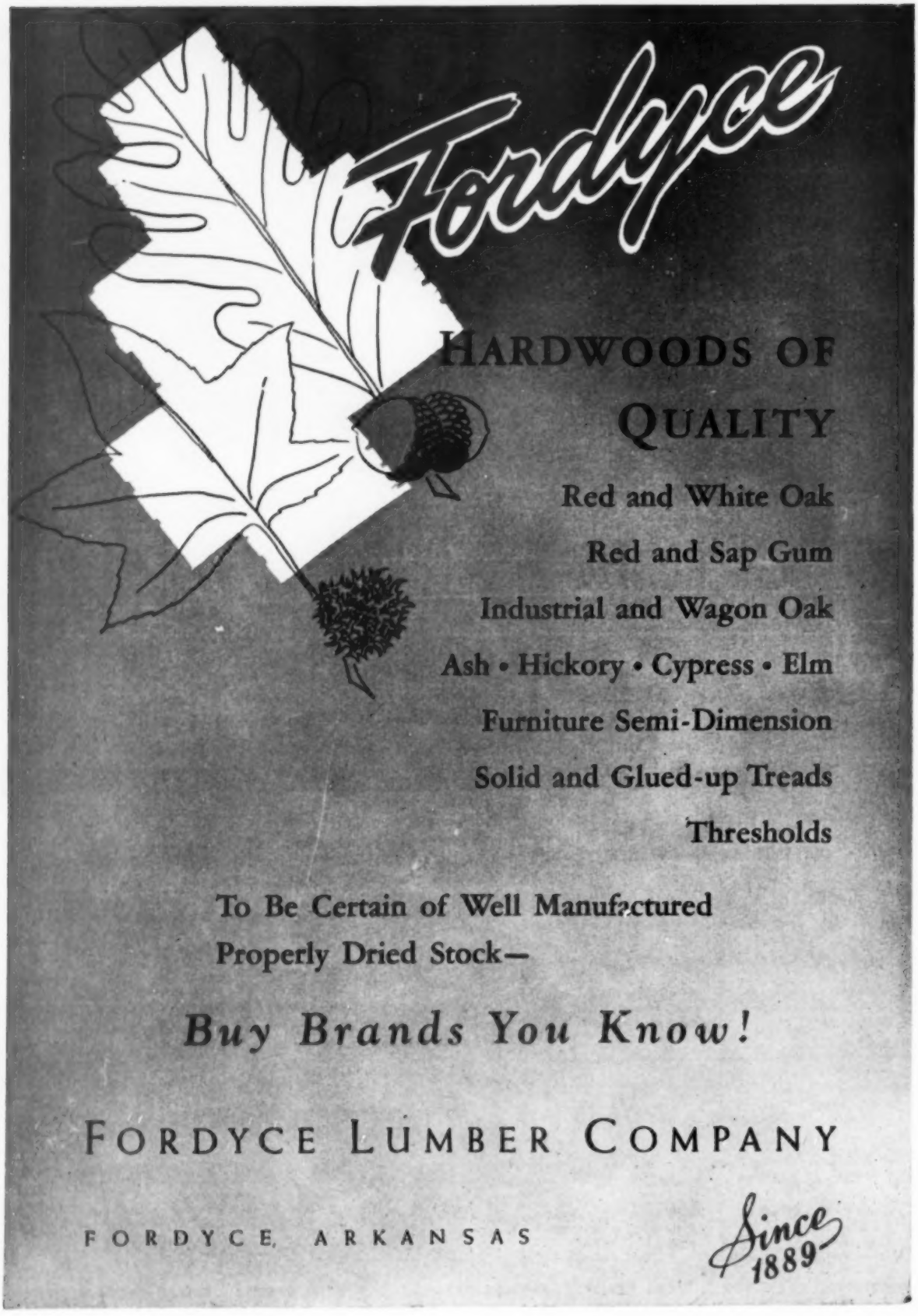
These resins offer longer storage life, faster cure, easier clean-up and better bonds. They're the results of Borden's longer experience in wood glues and a concentrated development program . . . proof that it pays to "buy it from Borden's."

Your Borden Glue expert will help you select the right resin for your operation—and then prove it with a plant demonstration. Write: The Borden Company, Chemical Division, Dept. W-54, 350 Madison Avenue, New York 17, N. Y.

INDUSTRIAL ADHESIVES

THE *Borden* COMPANY
CHEMICAL DIVISION

POLYVINYL . . . CASEIN . . . UREA RESIN . . . PHENOL RESIN . . . RESORCIN RESIN . . . EPOXY RESIN *ADHESIVES*


Fordyce
HARDWOODS OF QUALITY
Red and White Oak
Red and Sap Gum
Industrial and Wagon Oak
Ash • Hickory • Cypress • Elm
Furniture Semi-Dimension
Solid and Glued-up Treads
Thresholds
To Be Certain of Well Manufactured Properly Dried Stock—
Buy Brands You Know!
FORDYCE LUMBER COMPANY
FORDYCE, ARKANSAS
Since 1889

HOLES BY THE WHOLESALE

Continued from Page 32

in. holes in an area about 8 by 10 in.

Another make of universal joint gang borer is illustrated in Figs. 7 and 8, showing two splined shafts driving a front and rear set of universal spindles which provide shaft space for more working spindles than can be accommodated on a single shaft. The hold-down clamp rods are spring actuated and adjustable. The work table moves up into the boring range by means of a cam mechanism, actuated by a foot lever. The spindle arms are slotted for a maximum of 24 in. in and out, as well as having swivel adjustments of the same radius. Two or more spindles can be mounted in each arm, if required.

Special fixed or adjustable clusters can be attached to any of these universal spindles. This make of gang borer is available in 4, 5, 6, 8, 10, 12, 14, and 16 ft. table lengths.

A 16 ft. machine of this type is illustrated in Fig. 9, equipped with double driving shafts and twin operating levers for hand or foot manipulation.

Horizontal Spindle Borers

This basic type of horizontal boring machine is illustrated in Fig. 10. It is equipped with six special "in line" heads for boring door stiles, four 2-bit and two 4-bit. An eccentric clamp bar is shown above the bits, with leather-faced clamps (non-marring) to hold the work during boring. The drill carriage is moved horizontally in and out of the work by the same motor that operates the clamps.

Other types of heads available for this borer are shown in Fig. 11, one a triple "in line" head, and the other (left) for a single bit that tilts and is adjustable vertically. A number of other types of heads are also supplied with vertical and horizontal adjustments providing a wide range of boring facilities.

A special auxiliary attachment, in the form of an overhead bracket, can be supplied for simultaneously boring an additional series of vertical holes, as illustrated in Fig. 12. This setup is arranged for boring cross arms for telephone poles, in both directions, in one pass through the boring machine.

Adjustable Spindle Borers

The two classes of spindle boring machines previously described bore horizontal or vertical holes that enter the wood at substantially right angles to the wood surfaces, or to surface tangents in the case of curved areas. This third classification not only provides for boring horizontally and vertically, but has auxiliary adjustments which permit boring holes at various angles. It includes two types of multiple boring machines, in both of which the spindle heads may be tilted within a vertical plane, or swung around within a horizontal plane, or both may be combined in one setting.

One type in this classification consists of two columns mounted on horizontal ways so that the columns can be moved together or stretched apart, as for short or long work, respectively. Each column can be swung through a range of horizontal angles up to 90°. The boring head on each column can be tilted some 20° down or 10° up. In Fig. 13 the columns are both swung approximately 45°, while the boring heads remain horizontal. This setup could bore dowel holes in mitered corner joints. The auxiliary saw attachment could be used to miter saw corners in the same setup.

Photo B shows the columns swung 90°, facing each other. Instead of be-

Continued on Page 50

HANCHETT MODEL DN knife grinder

NEW! *fully automatic — low priced*

KNIFE CAPACITY — *32" to 108"*

MODEL DN FEATURES:

1. Timing belt drive. Positive — quiet — non-slipping.
2. Eliminates all gears (Requires no lubrication).
3. Free from vibration and reversal shock.
4. 100% Anti-Friction Bearings.
5. Precision ground ways for accuracy.
6. Guarantees perfect machine alignment.
7. Force feed lubricated ways.

Other models

AK EXTRA HEAVY DUTY

GK HEAVY DUTY

FINEST KNIFE EDGES

Write for complete information

HANCHETT MANUFACTURING COMPANY

World's Largest Manufacturer of Knife Grinding and Saw Sharpening Machinery

MAIN OFFICE — Big Rapids, Michigan **WEST COAST** — Portland, Oregon

HANCHETT GRINDERS

SEE

The PORTER EXHIBIT
at the
WOODWORKERS' INDUSTRIAL SHOW
Grand Rapids — May 5-6-7

cut costs and increase earnings with

PORTER METHOD ROUGH MILL

here's your guide to reduced costs with conveyorizing that fits any woodworking plant

PORTER pioneering

C. O. Porter Machinery Company, serving the woodworking industry over 65 years, has pioneered in Rough Mill Systems that pay for themselves in economies effected by their installation.

PORTER engineering

Every line is custom-engineered to fit each particular Rough Mill application, utilizing the flexibility and versatility of "PORTER METHOD" Systems. The floor plan of the area allotted for your rough mill operation, plus the machines available, are all that PORTER needs to make a proposed layout. There is no obligation.

PORTER construction

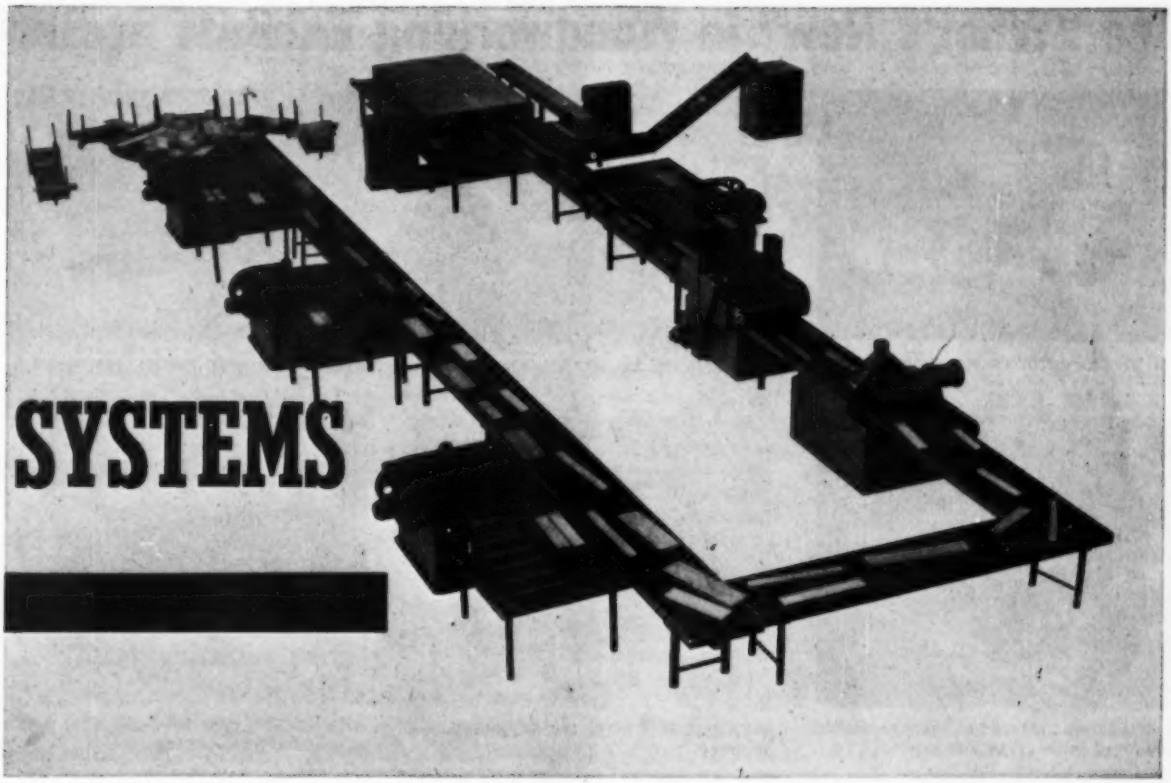
PORTER SYSTEMS are rugged in construction, with more than ample strength built in for the work they have to do. Formed channels are 3/16" steel; belt plates are 12-gauge steel; conveyor legs are 2" steel pipe — adjustable for height. Belts are top quality material. Drive rolls operate on precision ball bearings. Variable speed drive makes them easily adjustable to other operations in the conveyor line. Motors are equipped with overload relays and disconnect switch for protection of operator and motor.

PORTER service

PORTER conveyors move stock efficiently and economically between your machines, eliminating confusion and congested areas, for the maximum output. A PORTER engineer will visit your plant to discuss and study your lumber handling and processing problems. Your PORTER engineer is your constant consultant.

PORTER savings

Man-hours saved with the PORTER METHOD and equipment for Rough Mill operations are of primary interest to production-minded executives . . . the new PORTER Catalog "More Board Feet Per Day" tells you the story of these savings and the equipment.



and here's a typical set-up that frees nine out of sixteen men in a rough mill operation!

This PORTER METHOD Rough Mill set-up conveyorizes corners to save space, and frees nine out of sixteen men for other work. This is a savings for you of 72-man hours per 8-hour day.

Management's problem today is to reduce production costs. PORTER Systems are saving wood working plants thousands of dollars each year. Because overhead costs are fixed, the only way to effect a savings is by increasing production and lessening manpower. PORTER conveyorizing provides the answer. When you compare the footage to the man-hours required by the PORTER METHOD against the footage to the man-hours required with ordinary methods, you will discover how much more production with less man hours of labor you can gain, and how the total savings will more than pay for the cost of PORTER METHOD equipment. This will give you a better profit from your rough mill operation than ever before realized.

Send this coupon today for your copy of "More Board Feet Per Day"

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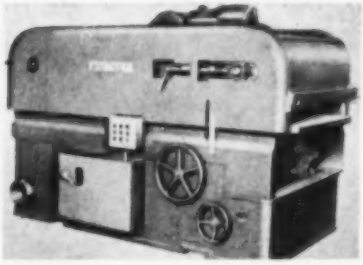
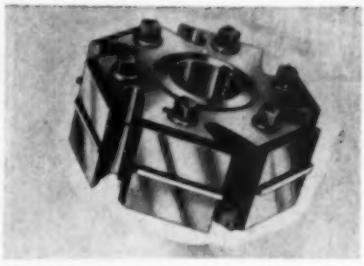
See "What's New" in Woodworking Exhibits at Show

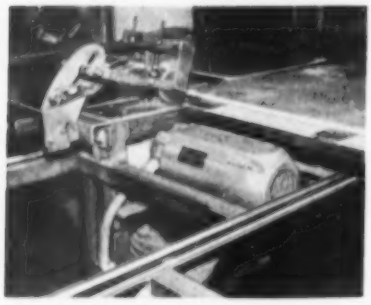
MOORE Dry Kiln Co.'s model kiln



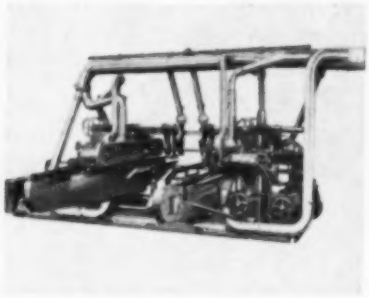
WHITNEY'S No. 600 new-matic facer



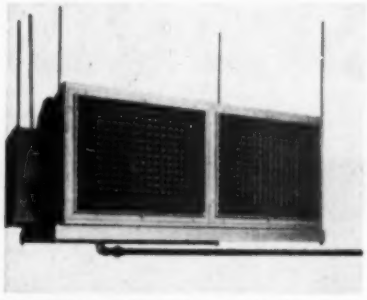
DIEHL'S dovetail design cutterhead



LOUIS ALLIS' SRP arbor motor, mounted with cross cut saw



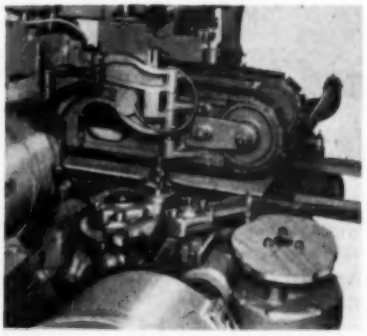
GREENLEE BROS.' No. 545 double-end tenoner



BAHNSON'S type BA humidifier unit suspended from ceiling

DEPENDABLE'S NN-320 hydro-travi knife grinder

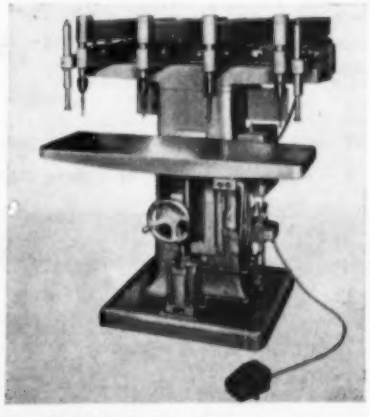
MATTISON'S 274 electric moulder



GREENLEE'S irregular shaping attachment for double end tenoner

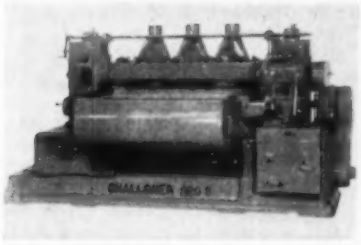
MATTISON'S No. 55-F automatic shaping lathe

ARMSTRONG'S steam humidifier, model C-2

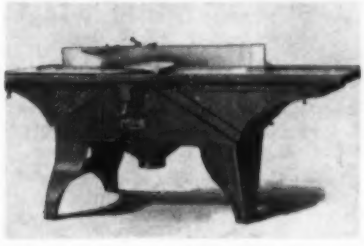


EKSTROM, CARLSON'S No. 448 multiple borer

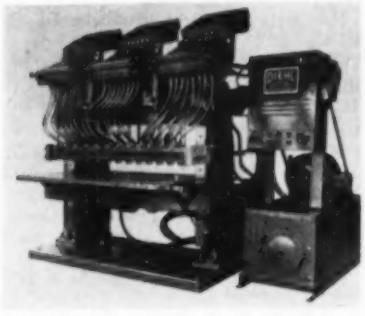
in Grand Rapids



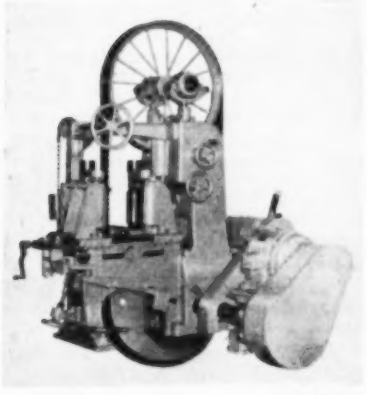
CHALLONER'S No. 820-S motorized slat bed multiple cut-off saw



MOAK'S 12 in. planer and jointer



DIEHL'S new hydronic nailer



McDONOUGH'S 44 in. vertical band resaw

LABORATORY MODELS of new machines, samples of their work and other attention-getters will be included in the more than 100 exhibits to be shown at the Woodworkers' Industry Show May 5-7 at the Civic Auditorium, Grand Rapids, Mich. Nearly 50 machines will be hooked up and operating under their own power, complete with special dust collecting system furnished by Kirk & Blum Mfg. Co.

One attraction at the show, to be held in conjunction with the 8th annual national Forest Products Research Society meeting, will be a laboratory model hot press operation, in which the visitor himself may make chip-core samples. The operation, which utilizes graded wood-waste chips bound together with liquid urea resin glue, will be a feature of National Casein Co. A few of the machines and models to be seen are shown herewith.

Auto-Nailer Co., in addition to showing its automatic nailing machines, will exhibit actual samples sent in from leading woodworking plants which use the equipment in the fabrication of their products.

A scale model of its double-track cross-circulation kiln will be exhibited by Moore Dry Kiln Co. Considerable detail work has gone into the construction of this working model. The fan system operates, the roof ventilators open and close automatically and the lumber loads can be moved in and out of the kiln on small dry kiln trucks.

Standard Dry Kiln Co. will show its internal fan design kiln and feature particularly the prefabricated aluminum building which will be shown by a scale model. Leitelt Iron Works will have on display a working model of its lumber lift as well as enlarged photographs of its various power transfer cars and other Leitelt equipment.

Included in the array of new equipment will be Curtis Machine Corp.'s Model 48-R4 hydraulic automatic rubbing machine for tables and case goods (featured on page 28, April WOOD & WOOD PRODUCTS). Another piece of equipment to be demonstrated for the first time will be Union Tool Corp.'s new automatic finger joint machine and a tongue and groove automatic assembly high frequency glue drying and sawing machine.

Woodworkers' Show Who's Who

Information on booths and personnel for all exhibitors responding to a questionnaire circulated by WOOD & WOOD PRODUCTS, available at press time:

Louis Allis Co., Ralph Owen, Bob Hitchcock, John Munson, Verne Schmidt Don Haynes.

Aget-Detroit, Booths Y 25-26.

Alexander Dodds Co., Booth VIb.

Armstrong Machine Works, Booth Y 14: T. H. Rea, O. E. Ulrich.

Auto-Nailer Co., Booths Z 12-13: Joe T. Howell, Ray W. Jewett, Frank D. Nelms, Troy G. Tate, W. H. Wilkerson, G. Mack Wynn.

American Cyanamid Co.: A. F. Collins, R. L. Hiller, R. A. Izzi, C. W. Johnson, N. L. Prince, W. S. Sloatman, G. B. Sunderland.

Bahnson Co., Booth Z 14: R. M. Anderson, M. A. Frink, H. W. Reid.

Bell Machine Co., Booths D 9-16: Jes Asmussen, E. J. Bell, Jr., William A. Mitchell, Harvey Raidy, Frank Schafer, Claude Tyler.

V. Berthelson Engineering Works, Inc.: V. Berthelsen, Fred Krarup, Ed Paupp, Louis Slack, E. F. Steck.

Black Brothers Co., Inc., Booth D 7.

Borden Co., Chemical Div., Booths Y 15-16: C. P. Hancock, L. J. Jawroski, C. M. McLagan, J. Maxwell, H. B. Sanders, E. J. Sullivan, B. B. Wadsworth.

Buss Machine Works, Booths G 1-16.

C.K.L. Machinery Co., Booths 20-21: Frank Challoner, Frank Challoner, Jr., Harold W. Fenrich, Henry W. Kratsch.

Carter Products Co., Inc., Booth 6: A. G. Carter, T. L. Watson.

Curtis Machine Corp., Booths E 17-18: Harry Carlson, Gene DeMambro, Fred Hopke.

Clark Equipment Co., Bob Hansen.

Delmhorst Instrument Co., Booth X 14: Joseph A. Barnes, William J. Delmhorst, Mrs. Marie Delmhorst.

Delta Power Tool Division, Rockwell Manufacturing Co.: Ray DuBrucq, G. H. Madeska, T. C. Mortimer, E. W. Ristau, Bill Samuels, R. L. Young.

DeLuxe Saw and Tool Co., Rockwell Manufacturing Co., Booths F 1-3: A. G. Feldman.

Dependable Machine Co., Booth H 8: Alfred J. Backus, Charles G. Monnett, Jr., George A. Risell.

G. M. Diehl Machine Works: F. Brady, Clem D. Coady, F. A. Collinge, John A. Collinge, Al Ewan, Rust D. Gray, George Gustin, R. Miller, Max D. Pretorius, Elvan Richardson, Howard Temple, Vern Vrooman.

Drake Corp., Booth VII.

Ekstrom, Carlson & Co., Booths E 8-15: Willard P. Anderson, Kenneth Betts, Emil W. Bodin, S. Peter Ekstrom, Fred J. Heid, Earl D. Jones, Edwin B. Johnson, Ray J. Johnson, Kenneth R. Larson, Theodore C. Mann, Harold E. Nelson, Ray L. Olson, Kenneth Ray, Vern Satterthwaite, Clarence M. Theien, James S. Tompkins.

Econoway Mfg. Co., Booth Y 1.

Electronics Heating Corp., Booths G 6-11.

Enterprise Co., Booth E 7: E. F.

Altomare, E. Rohrer, William K. Stamets, Jr.

J. A. Fay & Egan Co., Booths B 5-7: R. Andriessen, E. R. Gabriel, A. A. McLaughlin, V. R. Rechtin.

Fjellman & Winther Engineering Co.: Kaj I. Winther.

Foley Manufacturing Co., Booth H 1: Bruce Bartel, Peter C. Hartmann.

Greenlee Bros. & Co., K. V. White, plus Sales and Engineering representatives.

Hart, Earle, Woodworking Machinery Co., Booth A 7: E. L. Hart and others.

Hawker Mfg. Co., Booth E 16.

Henry Disston & Sons, Inc., Booth Y 2: E. H. Biemuller, Jr., V. J. Miller.

Howell Electric Motors Co.: H. Hamel, V. A. Miklas, J. J. Orr.

Irvington Machine Works: J. E. Grutter, W. A. Jones.

Kennametal, Inc.: F. L. Brugger, A. G. McKenna, H. H. Palmer, G. L. Peacock, Stanley Repko, R. V. Reynolds, W. D. Turnbull, W. D. Weeks.

Kirk & Blum Mfg. Co., Booth X.

George Koch Sons, Inc.: Ray DeBurgh, A. Wetherell.

Leitelt Iron Works: Glenn W. Sackett, Alfred J. Simpson, Thomas A. Steel, Freeman Van Haften.

Lemmon and Snoap, Booth X: Kenneth Lemmon, Rex Lemmon, A. J. Snoap, Leonard Snoap.

McDonough Manufacturing Co., Booth F 4: Amos Froseth, John L. Kildahl, Fred P. Loveland.

Mann-Russell Electronics, Booth Z 4.

Masonite Corp.: William Appledorn, Elmer Graebner, J. R. Hahn, R. J. Toles.

Mattison Machine Works, P. L. Mattison, W. C. Hagstrom, Louis Kroll, Russell Crowe.

Mereen-Johnson Machine Co., Booths E 5-7: C. R. Johnson, G. A. Johnson, R. E. Johnson, C. L. McDermott.

Moak Machine & Tool Co., Booths I 7-8: E. H. Moak, William Schwalbe.

Moisture Register Co., Booth X-2.

Monical Machinery Co., Booth E 6: Tom Beaton, R. E. Holt, Marion Martin, W. S. Monical, S. L. Warber.

Monsanto Chemical Co.: W. Agurkis, E. A. Anderson, A. L. Bonutto, C. F. Brunson, N. Harris, W. Leichman, T. J. Martin, W. K. Schlegel, W. F. Spinnigan, F. H. Williams.

Moore Dry Kiln Co., Booth X 15: R. H. Knight, Pat Williams, Jr.

National Adhesives, Booth X 16: W. E. Kuhrt, Jesse McClaran, Paul H. McCormack, E. G. Swenson.

National Casein Co., Booths X 6-7: Robert Allen, R. W. Archambeault, Elmer E. Bergey, Thomas H. Cook, Robert Cousins, O. B. Derr, Robert Etien, Russell Gerleman, A. H. Marten, Warren H. Mell, Richard Porter, Richard Shipley, George Tasker, Bart H. Thielges.

Nash, J. M. Co., Booth D 8.

Nelsonite Chemical Products, Booth Y 13.

Newman Machine Co., Inc.: John M. Gillespie, Wallace D. Johnson, J. R. Martin, George F. Newman, Jr., Paul R. Vestal.

Noble Machinery Co., Booth A-9: Dawson Curtis, Charlie Hill, Ken Noble, Bob Wallace.

North American Products Corp., Booth Y 9: Donald L. DeLand, Earl Picklesimer.

Oliver Machinery Co., Booths C 1-3, 20-21: Arthur Blake, N. J. Conklin, R. DeVries, M. E. DeWitt, W. Goudey, J. G. Hartger, F. W. Kramer, William Lowthian, E. L. McBride, J. E. McLauchlen, William Page, G. C. Ramer, W. A. Samiec, John Walsh, R. T. White, J. R. Young.

Onsrud Machine Works, Inc., Booths E 1-4, 19-21: George Anderson, Albert L. Breuer, Richard Christophersen, Art Johnson, George Linsner, Richard Nordby, Olai Olsen, R. F. Onsrud, R. C. Reinhartsen.

Perkins Glue Co.: Laurence E. Clark, Jr., John B. Hayward, E. Morris Jones or Jack B. Jones, Virl D. Marshall, James H. Stryker, Julius B. B. Stryker, Jr.

Porter, C. O. Machinery Co., Booths G 2-5, 12-15.

Powers Wire Products Co., Booth 15: Joe Galiske, J. E. Hart, S. K. Harnden.

Price & Rutzebeck, Booth I-3: Warren Frenell, James A. Price, John D. Rutzebeck.

Protection Products Manufacturing Co.: G. G. Garlick, S. O. Hall, H. C.

Note how the brushes force the abrasive cloth down into the grooves.

Sand-O-Flex is being used for finishing spiral lamp stands.

Used portably, Sand-O-Flex sands intricate parts without "flatting" contours.

13,000 sanding strokes a minute

on curved, irregular wood surfaces

Sand-O-Flex gets in and around complicated parts where no other sander can reach. The tedious jobs formerly done by hand are now successfully sanded at top speeds.

Model 650C (above left) consists of 12 abrasive strips backed up by 12 replaceable brushes attached to a metal wheel. As the wheel spins the brushes mold the garnet cloth to the work shape, and when rotated at the usual motor speed you get 13,000 sanding strokes per minute! Compare that with any other form of contour sanding.

The abrasive strips feed out from a central magazine. Refill cartridges are supplied in a wide range of grits, from coarse to very fine, for all types of sanding. Easily loaded—no looping, gluing, or fastening ends. By changing to aluminum-oxide abrasive cartridges, Sand-O-Flex may also be used for finishing metals, plastics, rubber and other materials.

Sand-O-Flex is an attachment, fits your present power tools, portable or stationary. No need to buy stands or special equipment. Four models now available—from light duty to heavy production-line runs.

There is a job for Sand-O-Flex in every woodworking shop and there is a Sand-O-Flex sander for every job. See your abrasive supply dealer for a demonstration—or write for catalog and prices.

MERIT PRODUCTS, INC.
4023 Irving Place, Culver City, California

Manufacturers of SAND-O-FLEX and GRIND-O-FLEX abrasive tools

Kennedy, Lloyd VanBuskirk, R. W. Wadington, L. I. Winebrenner.

Radial Cutter Manufacturing Corp.: Carl P. Gensheimer, Robert Graff, William S. Willette.

Redco Tool Division, Red Lion Cabinet Co., Booth 9: G. W. Brown, J. C. Hampton, Jr., S. S. Sechrist, J. H. Stein.

Rees Blow Pipe Mfg. Co., Booth Y 12: M. D. Cole, C. H. Cowan, Sr., C. H. Cowan, Jr., Russell Rees.

Reeve Electronics, Inc.: John R. Guenther, Miss G. L. Steichmann, I. R. Wayne.

B. M. Root Co., Booths 4-5: Burnell Diehl, M. C. Diehl, Thomas Dowell, Benj. M. Root, William M. Stair.

Senco Products, Inc., Booth X-3: John Armacost, Pat Fisher, Dick Lund, James Pickett, A. R. Rickling, William Tillinghast.

Sheboygan Machine Co., Booth E 5: L. A. Nelson, Robert Patterson, A. W. Schneidewind.

Simonds Saw & Steel Co., Booth X 12-13: Ike D. Anderson, Robert A. Berg, Harold Olson, Eugene J. Porter.

Sinker-Davis Co., Booth 14: George C. Martin.

Standard Dry Kiln Co., Booth 2: R. C. Elliott, J. B. Welch.

Stalter Edge Tool Co., Booth Y 6: Arthur Howland, E. D. Stalter.

Tannewitz Works, Booth D 19: Randy Holt, Taisto Lindholm, Casey VandenBroek, Paul Wilder.

Timber Engineering Co., Booth Y-20: Robert A. Holcombe.

Timesavers, Inc., Booths I 1-2: D. W. Massey, R. F. Pendergast.

Union Tool Corp.: K. J. Heinzelman, K. J. Heinzelman, Jr., Don Kreis, Lewis Luckenbill.

Victory Carbide Saw & Tool Co., Inc., Booth X 23: H. J. Howard, C. Vanderwerker, C. Vanderwerker, Jr.

Walters Mfg. Co., Booths C 18-19.

Whitney, Baxter D., & Sons, Booths F 8-11.

Wilco Machine Works, Booths Y 9-10: John F. Bethea, Jr., Robert K. Jones, Richard O. Wilson.

Williams Patent Crusher & Pulverizer Co., Inc.: Edgar M. Carson, Edward Jueckstock.

Wisconsin Knife Works, Booth H 7: H. E. Cockerill, R. A. Gunderson, R. H. Solem.

Wolverine Finishes Corp., Booth W.

Woodwelding, Inc., Booth Z 24.

Wysong and Miles Co., Booths D 3-4: L. L. Holder, W. R. Kime.

Yates-American Machine Co., Booth B 9-11.

Vacationing in Chicago? Be Sure to Take the Family to See the New

HARDWOOD EXHIBIT

Museum of Science and Industry, 57th Street and South Shore Drive

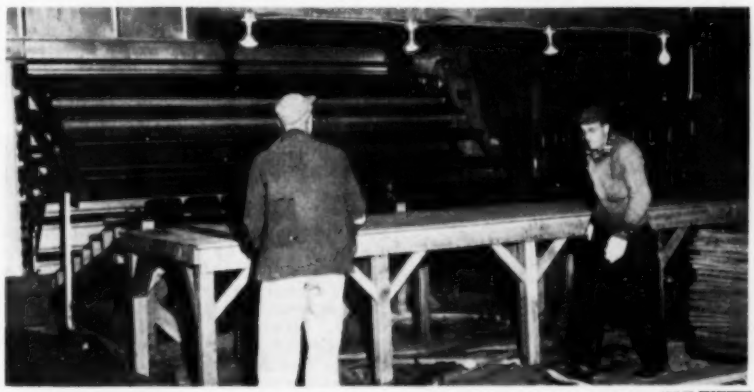
17 Vie for WOOD Awards Scheduled for FPRS Meeting

COMPETITION for the sixth annual Wood Awards to be presented at the Forest Products Research Society annual meeting May 5-7 in Grand Rapids, Mich., attracted an original entry list of ten college students each in the graduate and undergraduate divisions, according to Frank Rovsek, FPRS executive secretary. One entry has since dropped from the graduate division and two from the undergraduate division, and judges have been busy evaluating the papers of those remaining.

A $350 cash award and certificate of merit will be given by WOOD & WOOD PRODUCTS to the best paper submitted by a graduate student; prize for the best undergraduate paper will be $150 and certificate of merit.

Judges for the undergraduate committee are: J. S. Bethel, N. Carolina State College, chairman; H. O. Fleisher, U.S. Forest Products Laboratory, Aubrey Wylie, New York State College of Forestry; and J. H. Jenkins, For-

FIRST OF ITS KIND!



Moore Direct Heat Cross-Circulation Roller Veneer Dryer at Corvallis Plywood Co., Corvallis, Ore.

Moore DIRECT HEAT Roller Veneer Dryer

It's entirely NEW—developed by Moore Engineers! Now the small veneer plant can have modern drying facilities without the added cost of a steam plant.

1. **Economical installation and operation—hot air is recirculated.**
2. **Flexible and efficient—drying conditions are automatically controlled.**
3. **Minimum time required to bring dryer up to temperature.**
4. **Dryer may be heated with natural gas or liquid gas.**
5. **Split feed and split drive available for drying two kinds of stock at same time.**
6. **Maximum safety protection and control—open construction for easy cleaning.**

Write today for information on Moore Direct Heated or Steam Heated Veneer Dryers—no obligation.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE, FLORIDA · BRAMPTON, ONT., CANADA · VANCOUVER, B.C., CANADA · NORTH PORTLAND, OREGON

Timber talk may not be pretty but it gets the logs out. Ask the hook tender what a rooster is and he'll tell you it's a **"gooseneck"** *or maybe a* **"sprag."** *In English that means a bar used to couple two logging trucks.*

Buyers in the woodworking trades are more direct. They usually know what they want and find Pamudo handles quotations and cars of lumber in a manner they understand and appreciate.

FIR PLYWOOD AND LUMBER PRODUCTS THROUGH WAREHOUSES AND DIRECT CARS FROM TACOMA.

Sales Agents, Hardel Mutual Plywood Company
Olympia, Washington

Pamudo
PACIFIC MUTUAL DOOR CO.
General Office
RUST BUILDING, TACOMA 1, WASHINGTON

FROM TACOMA: Straight and Mixed Cars • Lumber and Lumber Products • Mouldings • Cut-to-Size Industrial Plywood • Cut Stock • Fir Plywood

WAREHOUSE STOCKS
PLYWOOD • DOORS • MOULDINGS
STOCK MILLWORK

WAREHOUSES
• St. Paul 4 • Chicago 38
• Kansas City 5, Kan. • Baltimore 31
• Elizabeth, New Jersey

est Products Laboratories of Canada. Judges for the graduate committee: E. S. Harrar, Duke University School of Forestry, chairman; A. A. Marra, University of Michigan School of Natural Resources; H. C. Moser, Gamble Bros., Inc.; D. G. Coleman, U.S. Forest Products Laboratory.

Graduate entries and their papers: J. W. Churchill (Michigan)—The Effect of Time, Temperature & Relative Humidity on Relief of Casehardening Stresses; G. Charles Morschauser (Michigan)—Effect of Rays on the Shrinkage of Wood; John I. Zerbe (New York State)—Impact Modulus of Elasticity in Wood, a Relationship of Impact Values to Static and Dynamic Measurements; David O. Yandle (N. Carolina State) — A Sampling Technique for Veneer Yield Studies;

Wayne K. Murphy (Penn State)—Effect of Wood Moisture Content on the Strength and Related Properties of Resorcinal Glue Lines; David F. Wentworth (N. Carolina State)—Unidirectional Drying of Hardwood in High Temperatures; Christian Skaar (Yale)—Analysis of Methods for Determining the Coefficients of Moisture Diffusion in Wood; Jack R. Mulholland —Changes in Weight and Strength of Sitka Spruce Associated with Decay by the Brow-rot Fungus; George Vasilion (New York State) — Factors Affecting Material and Labor Costs in Case Goods Manufacture; J. Howard Smith (New York State)—Dimension Yield by Grade from Classification Bolts.

Undergraduate entries and their papers: Robert H. McAlister & Robert L. Myers (U. of Idaho)—The Accuracy of an Electric Moisture Detector in Determining the Moisture Content of Living Trees; John C. Meadows, Jr. (Alabama Poly)—Evaluation of Shear in Wooden Beams; James T. Rice (Alabama Poly)—Strength of Scarf Joints in Southern Pine; Leon W. Thomas (Alabama Poly)—Simplified Tension Test for Wood;

Robert H. Giles, Jr. (Virginia Poly) —Cutting Waste by Sawdust Utilization; Donald B. King (Virginia Poly) —The Effect of Extenders or Fillers on the Strength of Glue Lines; Russell Stensrud (U. of Wash.)—Some Factors Affecting Bond Quality of Exterior Douglas Fir Plywood.

Time Table of Events

(Meeting rooms in Pantlind Hotel unless otherwise designated)

Tuesday, May 4

10:00 a.m. to 5:00 p.m.—FPRS Executive Board Meeting.

4:30 p.m. to 9:30 p.m.—Registration, Lobby.

5:30 p.m. to 8:30 p.m.—Host Hour, Kent State Room.

7:30 p.m. — Education Committee Meeting, Room 222.

8:00 p.m.—Ladies Coffee Hour, Sadler Lounge.

Wednesday, May 5

8:00 a.m. to 5:00 p.m.—Registration, Lobby.

9:00 a.m. to Noon—Plant Tours: 1. John Widdicomb Co.: 2. American Seating Co.; 3. Mueller Furniture Co.: 4. Stow-Davis Furniture Co.; 5. Grand Rapids Varnish Corp.; 6. Chris-Craft Corp., busses leave side entrance of Pantlind Hotel.

9:00 a.m.—Subject Matter Committee Meetings:

9:00 a.m.—(1) Glues & Gluing, Rm. 222.

9:00 a.m.—(2) Packaging, Rm. 324.

9:00 a.m.—(3) Wood Machining, Rm. 323.

10:30 a.m.—(4) Wood Composition Board, Rm. 325.

9:00 a.m.—(5) Wood Preservation, Rm. 327.

9:00 a.m.—(6) Wood Finishing, Rm. 328.

9:00 a.m. (all day)—Woodworkers Industry Show, Civic Auditorium.

11:00 a.m.—Ladies Style Show and Brunch, Continental Room.

12:00 Noon—FPRS Official Luncheon, Ballroom.

1:30 p.m.—Plant Tours (same as in the morning), busses leave south side entrance Pantlind.

2:00 p.m.—Ladies visit to leading Grand Rapids furniture companies, busses leave side entrance Pantlind.

2:00 p.m.—Subject Matter Committee Meetings:

(7) Wood Drying, Rm. 222.
(8) Quality Control, Rm. 324.
(9) Chemical Utilization, Rm. 323.
(10) Logging & Milling, Rm. 325.
(11) Veneer & Plywood, Rm. 327.
(12) Marketing, Rm. 328.

5:00 p.m.—General Subject Matter Committee Chairmen's Meeting.

7:00 p.m.—A.S.M.E. Carbide Standards Committee Meeting.

7:30 p.m.—FPRS Section Officers and Executive Board Meeting, Rm. 222.

Thursday, May 6

7:00 a.m.—Authors' Breakfast, Rm. 222.

8:00 a.m.—Registration, Civic Auditorium Lobby.

8:30 a.m. to 11:30 a.m.—Technical Session I, Packaging, Civic Auditorium Red & Gold Rm.; II, Wood Composition Board, Civic Auditorium Black & Silver Rm.

11:30 a.m.—FPRS Annual Members Business Meeting, Civic Auditorium Red & Gold Rm.

12:00 Noon—Section Officers Advisory Committee and Executive Board Luncheon, Rm. 222.

1:30 p.m.—Ladies visit to John Widdicomb Co. Showrooms, busses leave side entrance Pantlind Hotel.

1:30 p.m. to 4:30 p.m.—Technical Session III, Wood Machining, Civic Auditorium Black & Silver Rm.; IV, Wood Drying, Civic Auditorium, Red & Gold Rm.

5:30 p.m. to 6:30 p.m.—Paul Bunyan Hour, Ballroom, Kent State Room, and Lounge No. 4.

7:00 p.m. to 9:15 p.m. — FPRS "PARTY" (Dinner and Floor Show), Civic Auditorium Black & Silver Rm.

9:30 p.m. to Midnight—Orchestra Dancing—Refreshments, Mocha Rm.

Friday, May 7

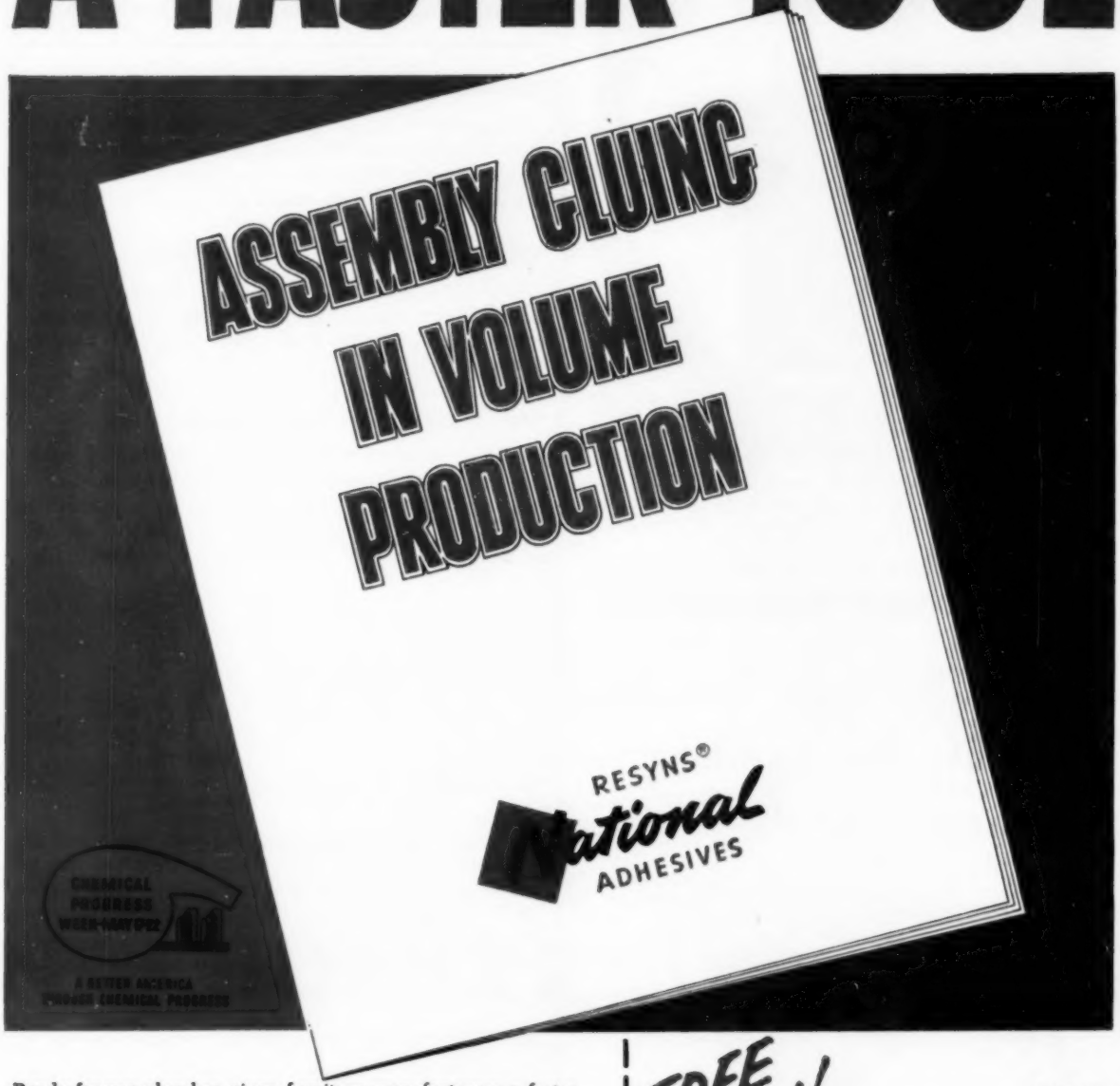
7:30 a.m.—Authors' Breakfast, Rm. 222.

9:00 a.m. to 12:00 a.m.—Technical Session 7, Glues & Gluing, Civic Auditorium Black & Silver Rm.; VI, General, Civic Auditorium Red & Gold Rm.

8:30 a.m. to 2:30 p.m.—Ladies trip to Holland on Lake Michigan, busses leave side entrance Pantlind Hotel.

1:30 p.m. to 4:30 p.m.—Technical Session VII, Wood Finishing, Civic Auditorium Black & Silver Rm.; VIII, Quality Control, Civic Auditorium Red & Gold Rm.

A FASTER TOOL



Ready-for-use glue has given furniture manufacturers a faster production tool.

The use of glue in assembly rooms is no longer a slow and unpredictable operation. Today's modern glue is a one-piece product. It's always ready-for-use. And its production advantages are easily defined. It is faster setting under conditions of both high and low clamping pressures. It produces joint strengths that are consistently high within a wider range of clamping conditions. It often permits final finishing after 15 to 20 minutes clamping time. As a result, it frees floor space once needed to permit slower glues to "cure" or "set." It eliminates rehandling.

How ready-for-use glue has become a modern production tool; its use in all types of joints; its semi-automatic and automatic applications; and other valuable production data is given in a new 8-page leaflet: ASSEMBLY GLUING IN VOLUME PRODUCTION. Send for your copies.

FREE Booklet!

Dept. WW

Please send _____ free copies of National's leaflet: ASSEMBLY GLUING IN VOLUME PRODUCTION.

Name_____ **Title**_____

Company_____

Address_____

City_____ **Zone**____ **State**_____

Address: NATIONAL ADHESIVES, 270 Madison Ave., New York 16; 3641 So. Washtenaw Ave., Chicago 32; 735 Battery St., San Francisco 11.

First Showing

see the new Onsrud

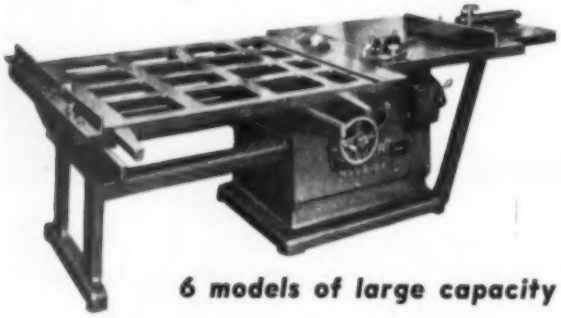
LUMBER STRETCHER

converts costly scrap lumber into useful production material

Also see Onsrud Routers and Shapers at the:
WOODWORKERS INDUSTRY SHOW, May 5,6 and 7, 1954
CIVIC AUDITORIUM—Section E,
Grand Rapids • Michigan

ONSRUD MACHINE WORKS, INC. 3938 Palmer Street, Chicago 47, Illinois

"OLIVER" Saw Benches simplify the handling of large panels



6 models of large capacity

This "Oliver" Saw Bench permits operator to rip, cross-cut, miter or dado stock of large dimensions at any angle or square while the work remains flat on the table. The No. 88-DX (above) rips stock up to 3" thick, and cross-cuts 3-inch stock as wide as 42" on the rolling table. Or it will cross-cut stock 48" long and 1" thick. It is fitted with the most complete and accurate set of graduated gauges. Also made in five models of even greater capacity. *Write for full details.*

OLIVER MACHINERY COMPANY
Established 1890 GRAND RAPIDS 2, MICHIGAN

WOOD PUZZLERS

This department is designed to help find answers to your production and sales problems. Let us know what information you need. Experience has shown that other readers may be able to help you.

138—Plywood Trays

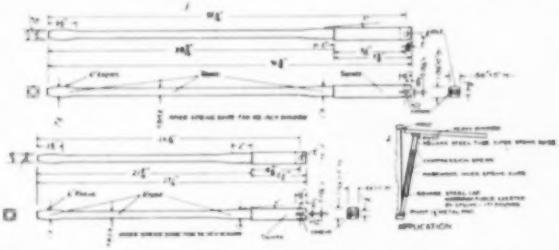
As producers of antique and wooden crafts, we have unfinished plywood trays and plates of which we would like to dispose. The round trays are 7⅞ in. diameter, while the trays range in size up to 18 x 22 in. (W. Va.)

139—K.D. Beech, Birch, Maple Stock

We are seeking supplier of K. D. Beech, Birch and Maple dimension on a steady basis. Large quantity either truck or rail. Prefer New England supplier. (Me.)

140—Hickory Inner Spring Guide

We have been advised that the "inner spring guide" shown on the accompanying print can probably best be made of hickory. Can you refer us to a firm that specializes in shaping wood products in this manner? We have fabricated a few of these "inner spring guides"

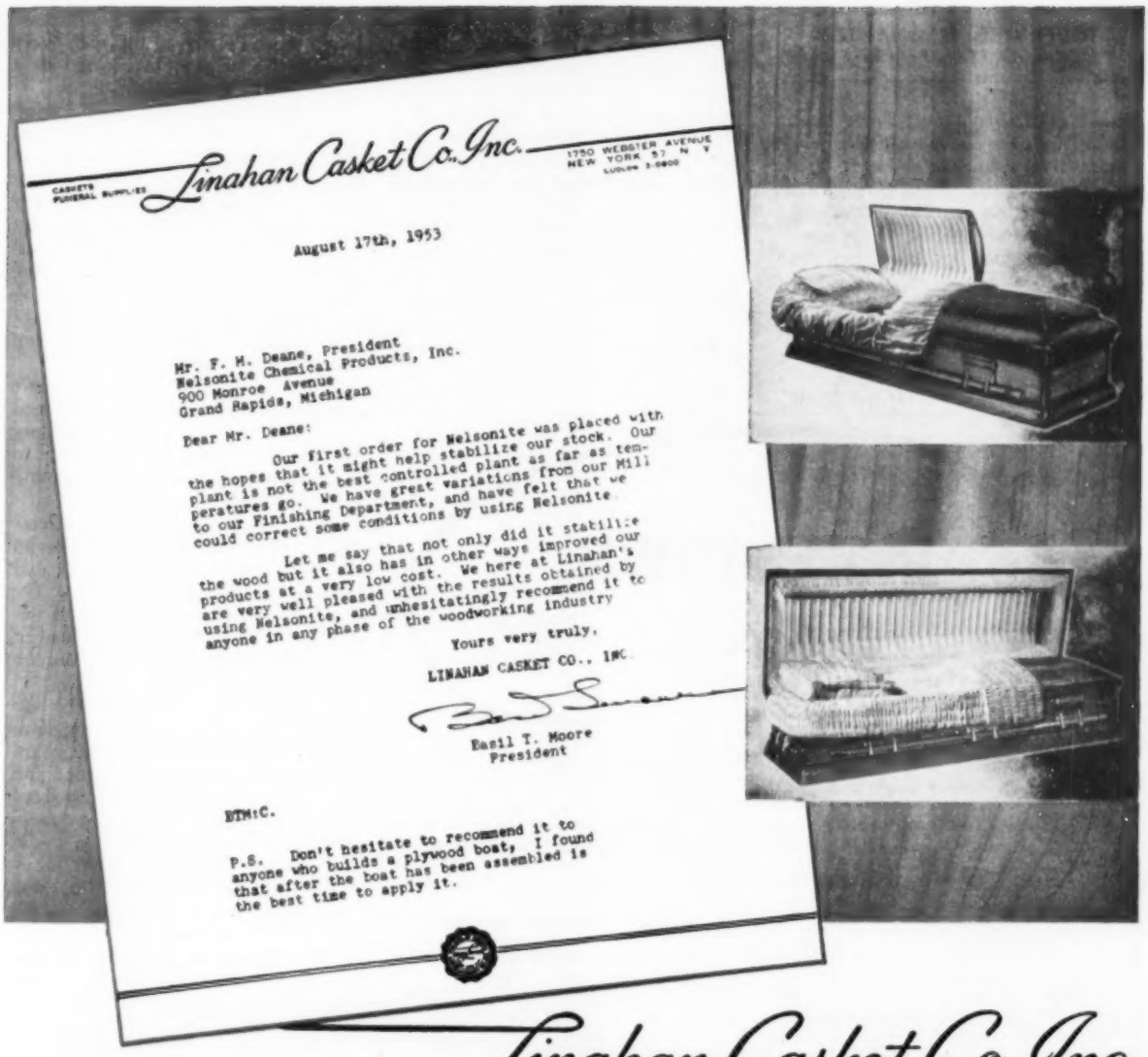


from steel but want to reduce the cost. We would like to contact a firm that will be able to do a low cost job on large quantities but would be willing to make a few at a time for awhile, say 100 of each of the two types shown. We will be glad to make any necessary investment in special tools to insure an eventual low cost supply of a satisfactory product. (Tex.)

141—Facing Veneers

We desire addresses of manufacturers of facing veneers such as knotty pine, maple, birch, and poplar. We would appreciate any help you would be able to give us in this matter. (Va.)

BUSINESS MEN who spend a third of their lives in offices are turning to wood paneling. It has a masculine look and low upkeep. Sea Swirl, shown here, is made by Associated Plywood Mills, Inc., Dept. WP, Eugene, Ore.


CASKETS
FUNERAL SUPPLIES
Linahan Casket Co., Inc.
1750 WEBSTER AVENUE
NEW YORK 57, N. Y.
LUDLOW 3-0800
August 17th, 1953
Mr. F. M. Deane, President
Nelsonite Chemical Products, Inc.
900 Monroe Avenue
Grand Rapids, Michigan
Dear Mr. Deane:
Our first order for Nelsonite was placed with the hopes that it might help stabilize our stock. Our plant is not the best controlled plant as far as temperatures go. We have great variations from our Mill to our Finishing Department, and have felt that we could correct some conditions by using Nelsonite.
Let me say that not only did it stabilize the wood but it also has in other ways improved our products at a very low cost. We here at Linahan's are very well pleased with the results obtained by using Nelsonite, and unhesitatingly recommend it to anyone in any phase of the woodworking industry
Yours very truly,
LINAHAN CASKET CO., INC.
Basil T. Moore
President
BTM:C.
P.S. Don't hesitate to recommend it to anyone who builds a plywood boat, I found that after the boat has been assembled is the best time to apply it.

Linahan Casket Co., Inc.

NELSONIZES Caskets

FOR WOOD STABILIZATION AND LONGER LIFE AT **Low Cost**

MORE AND MORE MANUFACTURERS ARE NELSONIZING THEIR PRODUCTS

1. **Guards against checking, splitting, swelling and warping**
2. **Gives their sales departments an extra sales aid in a buyer's market**
3. **Reduces the three r's—rejects, repairs and reworks**
4. **Reduces costs and increases efficiency**

WHY DON'T YOU TRY IT? ⟶

NELSONITE
CHEMICAL PRODUCTS INC.

900 Monroe Avenue, N.W.,
Grand Rapids 2, Michigan.

We are interested in a NELSONITE formula for the following wood and wood products:_____

Please send us sample to meet our individual specifications, and suggested tests for us to make, at no charge.

NAME_____

FIRM NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

MODERNIZE, MECHANIZE

Continued from Page 28

tinue to operate in a much lower price market. In a lumber market there are times when selling price bears little relationship to cost. Costs may go up as prices go down. The impact of adversity is not confined to the sawmill, the logging operation and the millwork plant alone.

Since 1921 a very fine community with a population of around 8,000 to 10,000 people has been built up around this particular operation. There are two nice churches, a grade school and junior high school, some very good stores and two movies. Many types of businesses are being supported by the lumber and woodworking establishments as well as the surrounding farm trade. Credits have been extended, real estate, houses and capital goods bought on the instalment plan. The purchasing power flowing into this community is the foundation upon which all these values rests. Close the lumbering operations and the whole community disintegrates.

I don't need to spend much time trying to tell where and how woodworking machinery fits into the economy of every one of the 53,000 sawmills, the millwork plants and every other operation that uses wood as a raw or semi-raw material.

We produce lumber and wood products because we are provided with machines for the job in hand, and modern machines have in many cases provided the means of putting lumber and lumber products into current uses that a short time ago seemed impossible. A good case in point is the improvement in dry kilns and drying techniques which have made much of our hardwood flooring manufacture practical and possible.

When radio and television came into being, new machines produced parts and cabinets. New machines have made it possible for lumber to maintain its position in the shipping container field.

Since the price of lumber affects the volume consumption of lumber in the manufacture of end-products, and since price will affect the volume demand for machines, it is hard to understand why such a large segment of the lumber mills have been left in the horse-and-buggy age.

I cannot help wondering why the operator I mentioned above modernized his woods operation and his lumber handling facilities in the yard and let his sawmill, dry kiln and finishing mill go to pot. It certainly is not a question of available capital or credit, so I can only conclude there is something of the attitude, "Well, this was good enough for Grandpappy, and it's good enough for me."

The stability of the primary producer influences the stability of the end-product producer, and at every point along the line machines control production.

As a result of my experience in Washington and my very extensive contacts in all parts of the United States, and because of my rather frequent visits to producing mills, I have come to the conclusion that the current and future stability of the economy of the lumber and wood products industries is almost entirely dependent upon the industry's ability to select the proper machines, install them in a proper location within a producing unit, and build the entire organization around their production capacity and operational efficiency.

Furniture Mfrs. Sponsor School

The Furniture Manufacturers Association of Grand Rapids sponsored a repair and refinishing school for the nation's retailers in April. The course, the seventh of its type, was held in the Exhibitors Building, and supplemented by visits to local plants of the "student's" choice.

JAMESTOWN
Specials

SPECIALLY ENGINEERED cut-to-size KITCHEN CABINET DOORS—Always have been and still are GUARANTEED FOR QUALITY.

BAL-CO-PLY non-warping door stock—engineered for cabinets and furniture parts that require a practically WARP PROOF plywood.

JAMESTOWN A GRADE BIRCH—skillfully matched for grain and color.

JAMESTOWN NORTHERN RED OAK—we select and cut our own veneers.

JAMESTOWN CHAUTAUQUA COUNTY NATURAL Hard White Maple.

. . . also WALNUT, MAHOGANY, RIFT and PLAIN WHITE OAK, CHERRY as well as other NATIVE and EXOTIC woods.

any of the above in all standard thicknesses with lumber, fir or veneer core.

PRIDE & PLYWOOD

Commodities of all kinds are offered at prices ranging from the sublime to the ridiculous. Plywood is no different than other commodities in this respect.

We feel that the consuming public still wants the BEST and takes real PRIDE in ownership of the BEST.

JAMESTOWN VENEER and PLYWOOD CORP.
Jamestown 2, N. Y.

JAMESTOWN
HOT PRESSED RESIN BONDED
PLYWOOD

minimum prices may be had on quantities of 100 of size and kind, in truckload or carload lots.

Glues that measure up to the Men Who Sell Them

National Casein takes the opportunity to salute the men who represent us—our salesmen.

They're "Glue Men"—these men who bring National Casein glues to your attention—who take your glue orders—who follow through after our glues are delivered to be certain that they perform up to—or in excess of—the standards they claim for them.

We know what our salesmen say about National Casein glues—how enthusiastic they are over their quality—how certain our salesmen are that you couldn't buy better glues anywhere else—at any price.

So, rest assured you'll get from National Casein resin and casein glues that measure up to the men who sell them—glues you'll stick with because they stick for you.

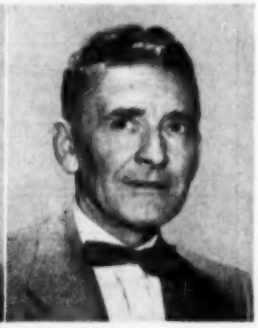
Thomas Cook

DR. THOMAS H. COOK,
For National Casein Glues

ROBERT A. (BOB) ETIEN
Mississippi, Louisiana, Arkansas, East Texas. Former woodworking plant manager. Red-haired, fun-loving Air Force veteran with "ZOOM!"

O. B. (OBIE) DERR
Pennsylvania, West Virginia, New York, New Jersey. A sales technician for 20 successful years. Infectiously enthusiastic and entertaining.

ROBERT T. (BOB) COUSINS
Virginia and the Carolinas. War veteran and veteran adhesive technician. Intelligent conversationalist, popular with customers.



ARNO H. (MARTY) MARTIN
Wisconsin, Minnesota, Upper Michigan, an adhesive technician for 28 productive years. Dean of National Casein salesmen—and a true fisherman.

National Casein
601 W. 80th St., Chicago 20, Ill. • Broad and Fulton Sts., Riverton, N. J.

RICHARD S. (DICK) PORTER
Ohio, Northern Indiana, Michigan, South Chicago. Adhesive sales and service technician. World War II bomber pilot. Pleasant, likeable product of North Carolina, suh!

ROBERT W. ARCHAMBEAULT
Iowa, Nebraska, Northern Illinois, North Chicago. Adhesive sales technician, World War II transport pilot. Happy, smiling, genuinely-liked American of French descent.

WARREN H. MELL
New England and New York City. Veteran of World War II European Sector, lumber and woodworking industries. High-[illegible] conscious-minded, [illegible] professionalist.

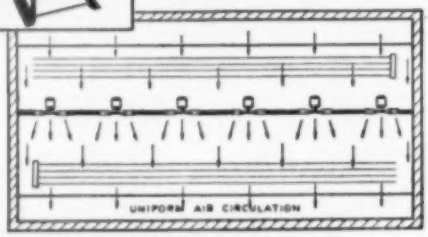
ROBERT E. (BOB) ALLEN
Tennessee, Kentucky, Illinois, Indiana and St. Louis. Adhesive sales technician. Former woodworking purchasing agent, World War II vet. Congenial and capable—he *knows glues!*

INCREASE DRYING QUALITY
CUT DRYING COST—*with*

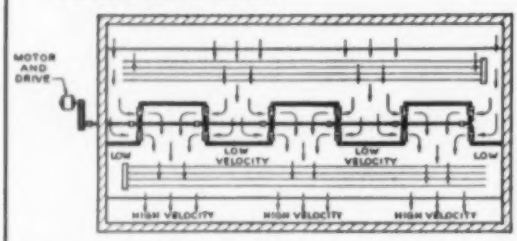
STANDARD!

The Dry Kiln with Direct Uniform Cross Re-circulation

Each fan in the STANDARD kiln is directly driven with its own automatic reversible motor. The motor is glass and silicone insulated to withstand temperatures up to 356° F. and humidities up to 100%. It also features silicone-greased ball bearings.



ECONOMICAL STANDARD KILN, shown above, has individually-driven fans facing the direction of air flow through the lumber. This provides *direct* cross circulation with proper air velocity, uniformly distributed at *low* horsepower. Result: CHEAPER OPERATION, MORE UNIFORM AIR CIRCULATION!



COSTLY OLD-FASHIONED KILN, shown above, has line-shaft driven fans placed, opposed in pairs, at right angles to the direction of air flow. This causes *indirect* cross circulation which requires *greater* horsepower due to line-shaft drag and increased air resistance. Result: EXPENSIVE OPERATION, LESS UNIFORM AIR CIRCULATION!

For a new kiln or to modernize your old kiln, write today for complete information.

Manufacturers of Internal Fan Kilns

STANDARD
DRY KILN COMPANY

800 S. HARDING ST. . . . INDIANAPOLIS 21, IND.

PATENT DIGEST

Veneer Lathe

J. T. Latimer (to Jackson Industries, Inc.) U. S. 2,659,401. Nov. 17. Pressure bar support for veneer lathes.

Bowling Pin

J. R. Curtis. U. S. 2,652,081, Sept. 15. Process for manufacturing bowling pin billets.

Wood Heels

W. J. Grenier. U. S. 2,652,865, Sept. 22. Machine for cutting wood heels comprising a pair of rotatably mounted cutters, work holding clamps, a clamp carrying frame, and actuating means.

Log Debarker

J. R. Boswell (to Bark-Off Corp.). U. S. 2,652,867, Sept. 22. Log debarking machine including universally mounted spur wheels for spirally feeding a log and performing preliminary debarking, a flail positioned to strike the bark in a debarking operation, and means for adjustment.

Panel Forming Machine

C. D. Dosker (to Gamble Brothers, Inc.). U. S. 2,652,870, Sept. 22. Panel forming machine of the continuous planar type presenting an upwardly-facing planar surface extending along a path having flattening, clamping, high frequency glue setting and releasing areas.

Boat Structure

B. Frees, Jr. and I. O. Flolo. U. S. 2,654,102, Oct. 6. Plywood boat structure having rigid ribs, a layer of plywood secured thereto and chine strips connected through slots in the ribs.

Guard

C. C. Petersen (to Grace Petersen) U. S. 2,659,400. Nov. 17. Protective guard for a power saw.

Hammer Handles

P. L. Goins. U. S. 2,661,038. Dec. 1. Rotary cutter of the swinging frame type for making hammer handles.

Building Panel

W. H. Crowther. U. S. 2,659,938. Nov. 24. Building panel comprising a backing of low grade lumber and a thin face of high grade veneer.

Table Construction

G. H. Norquist. U. S. 2,660,497-8-9-500. Nov. 24. Artistically shaped folding leg table, a pivot latch for the legs, edge fastenings for top covers, and construction for the top.

Plywood

H. C. Soehner (to Mengel Co.) U. S. 2,660,548. Nov. 24. Plywood having at least one facing sheet free from discoloration made by the wet veneer method using heated caul plates faced with thin kraft paper.

Estimating Device

E. C. Oyler. U. S. 2,654,153, Oct. 6. Device for estimating the board foot contents of a standing tree comprising an L-shaped rigid body each leg of which bears indicia which permits estimation of board feet contents in multiples of pre-determined log lengths.

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NEW STIX Does Not Thicken With Age.
STIX Needs No Clamps, Presses or Heat.

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Scraper

S. Shaler. U. S. 2,660,785. Dec. 1. Wood scraper comprising a pair of sheet metal sections having along their lateral edges marginal walls arranged in edge abutting relation to form a hollow body.

Resawing

D. M. Daniel (to United Engineering Co.) U. S. 2,661,033. Dec. 1. Selective guide control mechanism for the slidable guide members mounted on the frame of a resaw device.

Guide

G. A. MacDonald. U. S. 2,661,034. Dec. 1. Portable power saw guide comprising a blade in the form of a flat, elongated, rectangular body having a circular extension at one end.

Remote Control

T. H. Balch and R. F. Van De Mark (to Sel-Set Co.) U. S. 2,661,036. Dec. 1. Remote control of sawmill setworks by electromechanical means.

Tool

L. McGihon (to King Sales and Engineering Co.) U. S. 2,661,037. Dec. 1. Compound woodworking tool with variable drive.

Shake Resawing

A. F. Gledhill and L. R. Lewis (to L. R. Lewis Co.) U. S. 2,659,936. Nov. 17. In a shake resawing machine, leading and lagging board holding elements gripping the board near opposite ends, carrier means, and retractible presser elements.

Planer Saw

H. G. Marvin. U. S. 2,659,398. Nov. 17. In combination with a peripheral toothed circular saw, a plurality of planer blades spaced circumferentially about the saw.

Planer Saw

C. E. Drake. U. S. 2,659,397. Nov. 17. Carbide-tipped planer saw.

Guard

J. V. Doug. U. S. 2,659,399. Nov. 17. Guard for portable power saws.

Baseball Bat

G. J. Letourneau. U. S. 2,659,605. Nov. 17. Baseball bat comprising a wooden body, a tapered end with grooved shoulders, two layers of sponge rubber in the grip area, and circular wooden beads over the rubber.

Log Barking

G. F. McClay (to Ingersoll-Rand Co.) U. S. 2,658,539. Nov. 10. In combination with a log barking drum, a liquid tank, means for rotating the drum in the tank, and flexible sealing elements on the walls arranged to prevent liquid from entering the space between walls.

Lumber Stacking

T. N. Melin. U. S. 2,658,630. Nov. 10. Continuous lumber stacking apparatus.

Wood Gathering

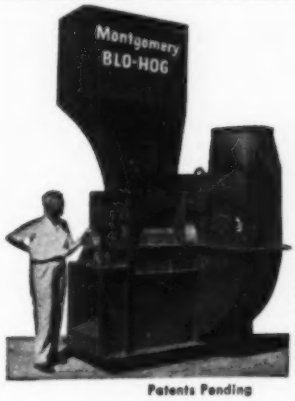
J. G. Sartin (to Hercules Powder Co.) U. S. 2,658,638. Nov. 10. Elevator-type automotive wood gathering machine.

Plywood

J. C. Perry (to Agrashell, Inc.) U. S. 2,658,840. Nov. 10. Mixing phenolic resin and cooling to 75° F. until applied to wood veneers.

Board

J. N. Sears (to L. J. Carr and Co.) U. S. 2,658,878. Nov. 10. Structural board prepared from wood waste, extracted soya flour, and melamine-urea-formaldehyde resin.



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Eats Up Everything!

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. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer, Round-up and Sandy Bark. Conveyor-fed—no attendant required. Positively protected from major damage by tramp steel. All connections locked — nothing to shake loose. Maintenance costs unbelievably low.

". . . Dear Mr. Montgomery: It is an unbelievable machine and it is still hard to believe that it is actually handling the enormous volume of scrap we are feeding into it. We operate the hog without an attendant—which means a considerable saving.—J. B. Black, Plant Superintendent, Ocala Manufacturing, Ice and Packing Co., Ocala, Fla."

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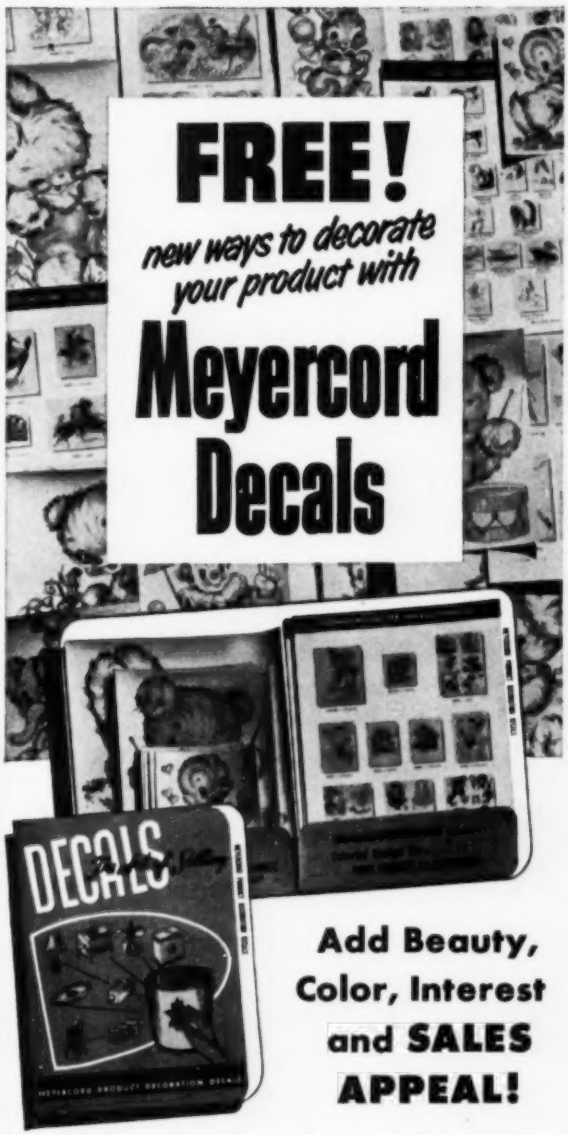

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HOLES BY THE WHOLESALE

Continued from Page 35

ing horizontal, both heads are tilted to chuck angling dowel extensions on stretchers for furniture. In all cases the work is clamped in a stationary position under air pressure, with the cutting tools moving into the wood under pneumatic power, and the tools driven by electric motors.

The boring unit consists of a central head for boring or chucking, and two side heads for boring only. The maximum capacity of each boring unit is 11 bits, with maximum center spacing of 1⅝ in vertically and 7 in. horizontally.

The other type of angle adjustable boring machine (Fig. 14) shows cut-off saws on the vertical spindles, driven through bevel gears, which are lowered to the work table level for cutting. There is a series of horizontal boring spindles that move forward from the rear. In addition, there is a series of vertical boring spindles, under the work table, that move up to bore the under side of the wood part.

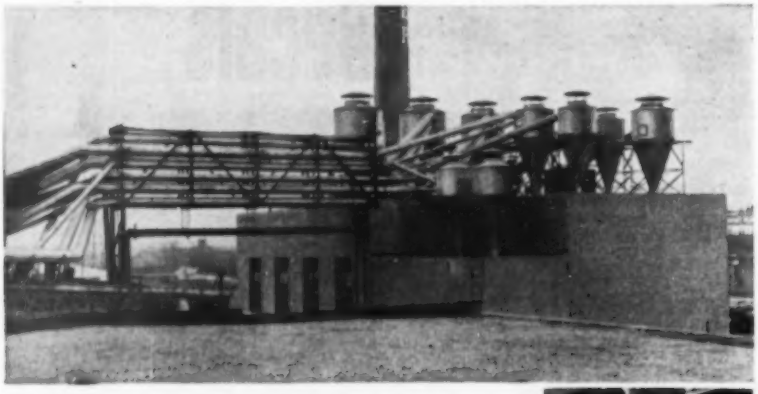
All of these spindles have angular adjustments. The cutting tools approach the wood part from three directions, down from above, up from below, and forward from the rear. This three-directional boring is especially useful on furniture legs or posts. All boring heads are standard and interchangeable, so the scope of work that can be done is unusually wide.

The special setup in Fig. 15 shows horizontal bits at three angles, vertical bits from below, and a pair of cut-off saws on the outside lower spindles.

While this article can do no more than outline these three classifications of multiple boring machines, it may perhaps present to the reader a few glimpses of the extraordinary versatility of modern boring equipment. It may be taken for granted that one of these versatile boring machines can be equipped, adjusted and operated on almost unbelievably complicated boring assignments which may well strain the credulity of even an experienced woodworker.

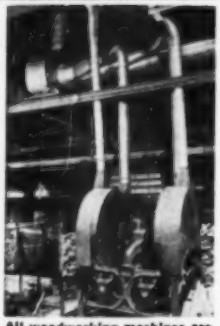
It is to be regretted that space does not permit the mention of other single and multiple boring machines, of excellent quality, that are helping to solve the many perplexing boring problems that occur in the woodworking industry.

Editor's Note: *Acknowledgements are gratefully made to the following companies for their courtesy in supplying photographs and data for this article: Bell Machine Co., Oshkosh, Wis.; Greenlee Brothers & Co., Rockford, Ill.; Oliver Machinery Co., Grand Rapids, Mich.; B. M. Root Co., York, Pa.*



PLANT SAVES COST of FUEL for HEAT and POWER

WITH AN *OBP Pneumatic System*

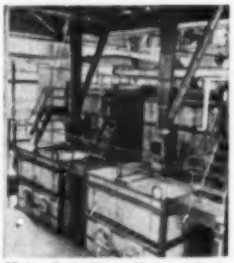


All woodworking machines are equipped with OBP Pneumatic Pick-ups. Waste is conveyed to Cyclone Collectors as quickly as produced. Some collectors feed direct to boilers, others to storage bins.

In this large midwestern woodworking plant, an OBP Pneumatic System not only removes all dust and dirt, it also collects chips, shavings and refuse and automatically carries the waste material to Cyclone Collectors from which it is re-routed to boilers to provide free fuel. This eliminates purchases of other types of fuel such as coal and gas, and effects a substantial annual savings.

In addition, with clean, neat work areas throughout the plant . . . fire hazards have been minimized, there's clean air to breathe, workers are healthier, happier and more productive.

Installation of an individually engineered OBP Pneumatic System does not interfere with your plant layout or machine arrangement . . . the initial cost is surprisingly low, and there's practically no maintenance.



Main fuel line (large pipe) feeds boiler by gravity direct from Cyclones. Night fuel line (smaller pipe, on diagonal) feeds automatically from storage bins.

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Book Answers Gluing Queries

Practical answers to everyday questions on glues, glue mixing and spreading, gluing equipment and methods, laminating, plywood and veneer, core problems, moisture content, hot and cold pressing, methods of testing glue joints are presented in a compact new book just published by WOOD & WOOD PRODUCTS, 139 N. Clark St., Chicago 2, Ill. The 100-page pocket-size book, entitled "150 Gluing Questions and Answers," is by Thomas D. Perry, a veteran of more than 40 years' practical experience in glue room problems. Some 70 diagrams and photographs point up the subject matter of the book's 14 chapters.

In order that it can be used as a reference piece in all departments of plants concerned with gluing operations, the book is fully indexed with some 425 alphabetical listings. Single copies sell for $1.50 postpaid; attractive discounts on orders for five or more copies.

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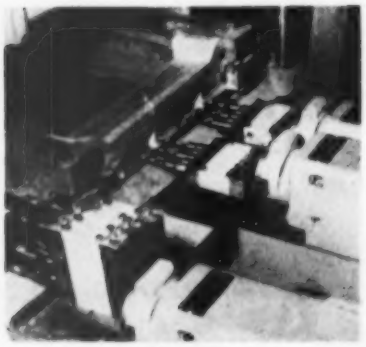
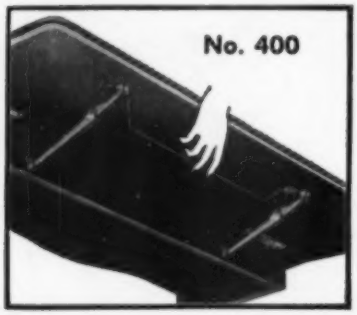


New Boring Machine in Use

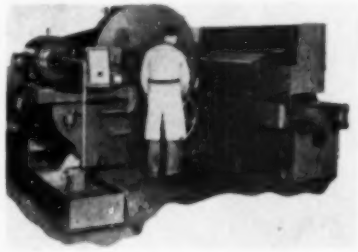
Installed at Hortonville Mfg. Co., Hortonville, Wis., is a new horizontal boring machine produced by Bell Machine Co., Dept. WP, Oshkosh, Wis. The Bell No. 205 features accurate work with interchangeable single and multiple spindle bit clusters and snug fitting ways. Operating automatically or manually, the machine is fast—up to 30 strokes per minute.

The unique Hortonville applications is used, among other things, for the complete hole boring on a toy workbench top, and as many as 16 holes may be bored completely at one time. The motor units are 1½ h.p. each, and the machine turns out some 600 to 800 completely bored holes per minute.



Drop Leaf Supports

Drop leaf supports with a built-in release which breaks both supports at once to drop the leaf are being produced by B. Walter & Co., Dept. WP, Wabash, Ind. The easily-installed No. 400 Support required only a slight downward pressure on the handle, which comes in varying lengths, in order to release the table leaf. It has a quick and positive spring action, and is available in steel, brass and zinc.



Hogger Knife Grinder

Hanchett Mfg. Co., Dept. WP, Big Rapids, Mich., announces the development of an entirely new patented machine for grinding the bevels on all types of straight knives and shear blades, particularly chipper, hog and barker knives, and all types of heavy duty shear blades. Extremely heavy cuts are possible at a high rate of table travel, using a large volume of coolant on the work pieces; knives and shear blades are ground with no

Presto-Set*—Weldwood's* *New Perfected White Glue—thaws out strong as ever!*

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In 1 gallon jars and 5, 10, 30 and 55 gallon drums. At any of our 64 convenient warehouses coast to coast, or from your mill supply dealer or industrial distributor. Also packed in over-the-counter sizes.

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We would like to test your new Weldwood Presto-Set Glue.
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minimize handling time . . .

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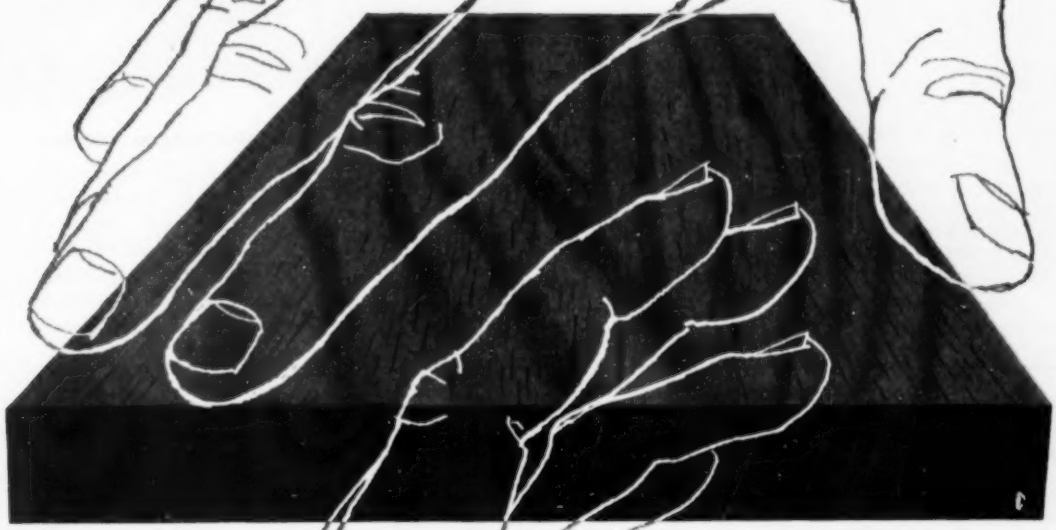

Every phase of your fabrication is facilitated by Frost's up-to-the-minute methods of drying and seasoning. Stock reaches you beautifully manufactured, dried flat, seasoned to specified moisture content and of uniform texture. These qualities assure an affinity for glue and maximum speed through planers.

Frost's uniform grading necessitates little sorting of lumber which minimizes handling time and affords maximum cuttings per hour.

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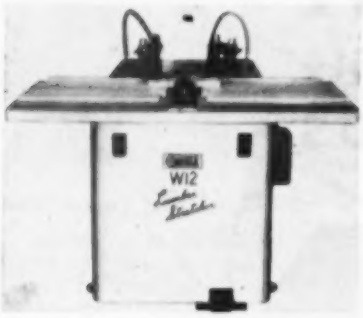
burning or heat generation. The Hanchett 'Big 60' Hogger features a 60 in. diameter segmental grinding wheel with a 5 in. diameter precision ground grinding wheel spindle mounted in extra heavy duty preloaded precision Timken bearings. In addition to the automatic infeed, there is a large manually operated hand wheel.



Onsrud Scarfing Machine

A scarfing machine which produces perfectly matched joints and cuts both mating boards simultaneously has been designed and built by Onsrud Machine Works, Inc., Dept. WP, 3900 W. Palmer St., Chicago. The model W-12, known as the "Lumber Stretcher," makes it possible to perform a complete cutting cycle on two board ends in approximately 15 seconds, including loading, clamping, cutting, return and unload.

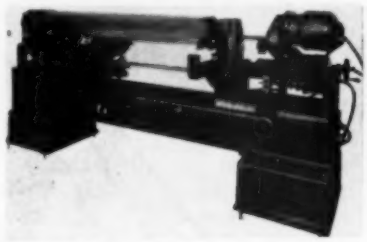
The stationary table provides greater accuracy in making long boards out of short, with the work clamped securely to the table and the scarfing cutters passing through the material, instead of the material moving through the cutters. Return movements of the cutters through the material completely cleans the cutter kerf, eliminating the necessity for further preparation prior to the application of glue.

The "Lumber Stretcher" will scarf boards up to and including 2 in. thick and 12 in. wide, with angular scarfs as well as straight joints. Lap joints and tapered finger joints up to 2 in. depth are possible.

End Trim Saw and Printer

Western Gear Works, Dept. WP, 417 Ninth Ave., Seattle, has announced a double end trim saw and end printer designed for the express purpose of effectively stamping both ends of every piece of lumber with the individual company's trademark and providing the smooth trim required for the stamp. Basically, it is a two-saw trimmer with one set of components operating in a fixed position and another saw printer head moving from 8 to 24 ft. cutting stations.

Two 7½ h.p. 3,600 r.p.m. special motorized saw arbors drive the saws and a 5 h.p. Reeves variable speed unit drives the main conveyor section. The movement of the sawing and printing equipment as well as the following conveyor section is effected through the use of a 1½ h.p. motor.



Multi-Purpose Machine

A versatile woodworking machine tool capable of performing as many as eight separate operations on either square, round or rectangular stock in one pass through the machine, is now in production at the Hawker Mfg. Co., Dept. WP, 1449 Keowee St., Dayton

Want lower costs?
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BELCOBALSA CORE STOCK

Reduces costs because it's cut-to-size, Certified Kilndried, packaged, ready to glue—yet is priced lower than green core stock delivered in random lengths and widths!

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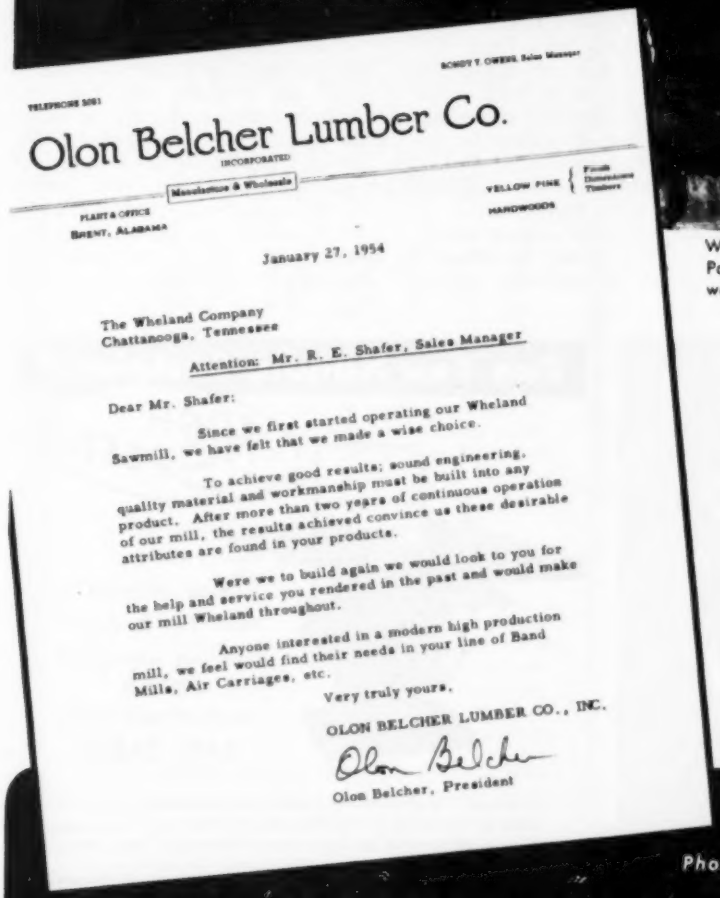

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January 27, 1954

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Attention: Mr. R. E. Shafer, Sales Manager

Dear Mr. Shafer:

Since we first started operating our Wheland Sawmill, we have felt that we made a wise choice.

To achieve good results; sound engineering, quality material and workmanship must be built into any product. After more than two years of continuous operation of our mill, the results achieved convince us these desirable attributes are found in your products.

Were we to build again we would look to you for the help and service you rendered in the past and would make our mill Wheland throughout.

Anyone interested in a modern high production mill, we feel would find their needs in your line of Band Mills, Air Carriages, etc.

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Olon Belcher

Olon Belcher, President

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4, O. In addition to cutting, this chucking machine can handle combinations of: tenoning, tapering, rounding, slotting, cross-boring, drilling, end-boring, threading, counter-sinking, and counter-boring. Stock can be handled from 1 to 5 ft. in length, and ⅜ to 1½ in. in diameter.

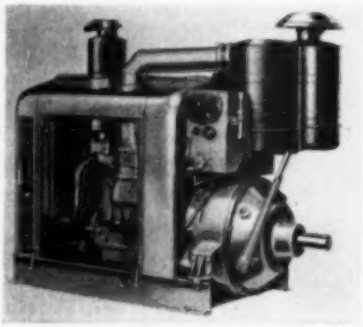
Grinding and Polishing Machine

Four models of a new contact grinding and polishing machine are among new equipment being made exclusively for the Curtis Machine Corp., Dept. WP, Jamestown, N. Y., by an affiliate company in Germany. Like the one shown here, all are completely integrated, double end, pedestal type machines for abrasive belt contact grinding and polishing. Power is furnished by electric motors with h.p. varying among the four models; and speed and surface speed of the abrasive belts varies accordingly.

All models have approximately 18 in. belt adjustment permitting use of one size belt with different diameter contact wheels. Either two belts or a belt and grinding wheel, or buff can be employed. All of the models are equipped with special type belt attachments that can be easily positioned vertically and swiveled to horizontal. This unique type of mounting permits the backstand extension to swivel 90° with maximum utilization of floor space.

New Design in Safety Saws

W. F. Meyers Co., Inc., Dept. WP, Bedford, Ind., has redesigned its safety saws in the 10 to 16 in. diameters to improve chip flow and eliminate overloading of gullets in the larger sizes. Meyco controlled-cut carbide tipped safety saws are made of a special alloy steel. Meyco blades are tipped with grades of carbide specifically selected for sawing operations on a wide variety of materials and are available in diameters to 16 in., with from 6 to 16 teeth. The carbide tips are applied by a new process designed to give the strongest possible adherence to body and eliminate tip failure due to brazing.



Lightweight Diesel Package

A new valveless Diesel power package developing 76 brake h.p. at 2,500 r.p.m. and weighing only 1,450 lb. has been added to the line of industrial engines manufactured by the Detroit Diesel Engine Division of General Motors, Dept. WP, Detroit 28. The engine is one of the Division's "4-51" models and has many unique features of design contributing to simplicity and portability. It is espe-

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Holds its position of

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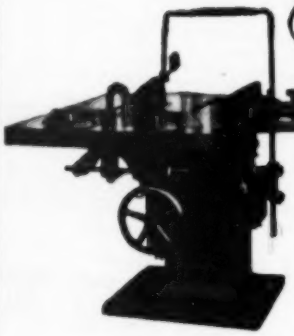

Then install a fast feed, ball-bearing equipped MOAK ALL-PURPOSE SAW TABLE

With today's high break-even points, it is essential to lower your costs by increasing your productivity. And the way to increase your productivity is to install Moak All-Purpose Saw Tables.

FAST ADJUSTMENTS: with accurate rip and cut-off gauges.

FAST FEED: lumber slides across smooth table.

FAST FINISHING: cuts to the line, minimizes sanding.

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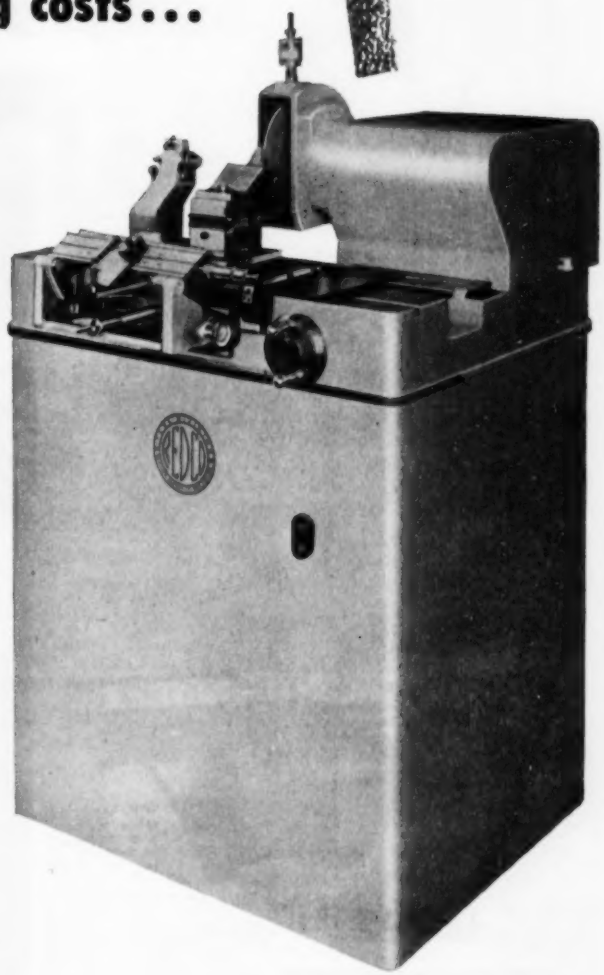
Accuracy, versatility, simplicity—they're the three key words that best describe the Redco Tool Grinder. It was developed by woodworking men for woodworking plants ...to save tool sharpening time, to reduce machine down-time and to keep tools at peak efficiency for operating cost savings up to 35%.

It's accurate...the Redco Grinder is capable of grinding within .001" tolerances.

It's versatile... equipped with the proper attachment, the Redco Grinder resharpens carbide tipped cutter heads, router bits, saws, grooving cutters, and other woodworking tools—makes and resharpens high speed steel and carbide tipped profile knives.

It's simple to operate... the Redco Grinder has reference keys and an automatic indexer to assure correct cutting angles and precision finishes. After a short training course—given free at Redco—any normally skilled operator can keep your production tools in tip-top condition.

Don't be a slave to high tool grinding costs ... *switch to the Redco Tool Grinder and save up to 35%!* Write today for all the facts.

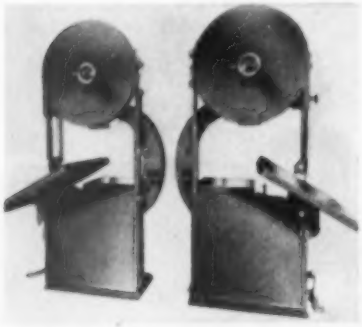


Here's the Redco Tool Grinder equipped with the profile knife grinding attachment.

REDCO TOOL DIVISION

RED LION CABINET CO., RED LION 1, PA.

cially adaptable for powering haul-in chains, conveyors, cut-off saws and other logging and sawmill applications where adequate power in a compact package is needed.



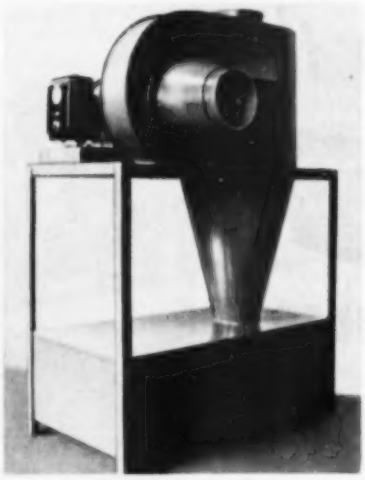
Left-Hand Band Saw

Moak Machine and Tool Co., Dept. WP, Port Huron, Mich., has announced a left-hand model of its well-known 36 in. high speed band saw. The right-hand model has long been popular for rugged performance, and the construction of the two models is identical with one exception – the frame of the left-hand band saw is of heavy steel welded construction, while the frame of the right-hand model is cast semi-steel.

Both models have two wheel equalized brakes, the table is located 40 in. above the floor, and all operating controls can be made without the operator changing his position.

Dust Collector for Wood

In order to meet specific requirements of the woodworking industry,



the standard type of dust collector has been "disjointed" by Aget-Detroit Co., Dept. WP, Ann Arbor, Mich. The Dustkops cyclone separator shown here can be located at some distance from the blower, rather than the two being integrated into one unit. The company's collectors represent a range of capacities from 600 cfm to 3,000 cfm per unit.

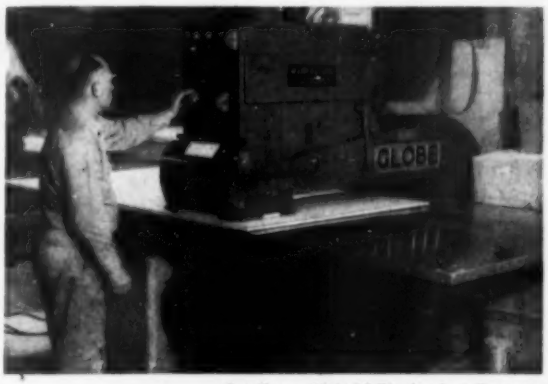
Chain Saw Wedges

Aluminum alloy chain saw wedges, tempered to avoid damage to saw teeth should they strike the wedge, have been developed by Foster Aluminum Alloy Products Corp., Dept. WP, Forestville, N. Y. The wedges are sufficiently shock-resistant to withstand the repeated blows of the sledge. The wedges range in size from 2⅜ to 4 in. wide by 5½ to 10 in. long. They can be had for use with either chisel or scratcher type chains.

Portable 10 in. Saw

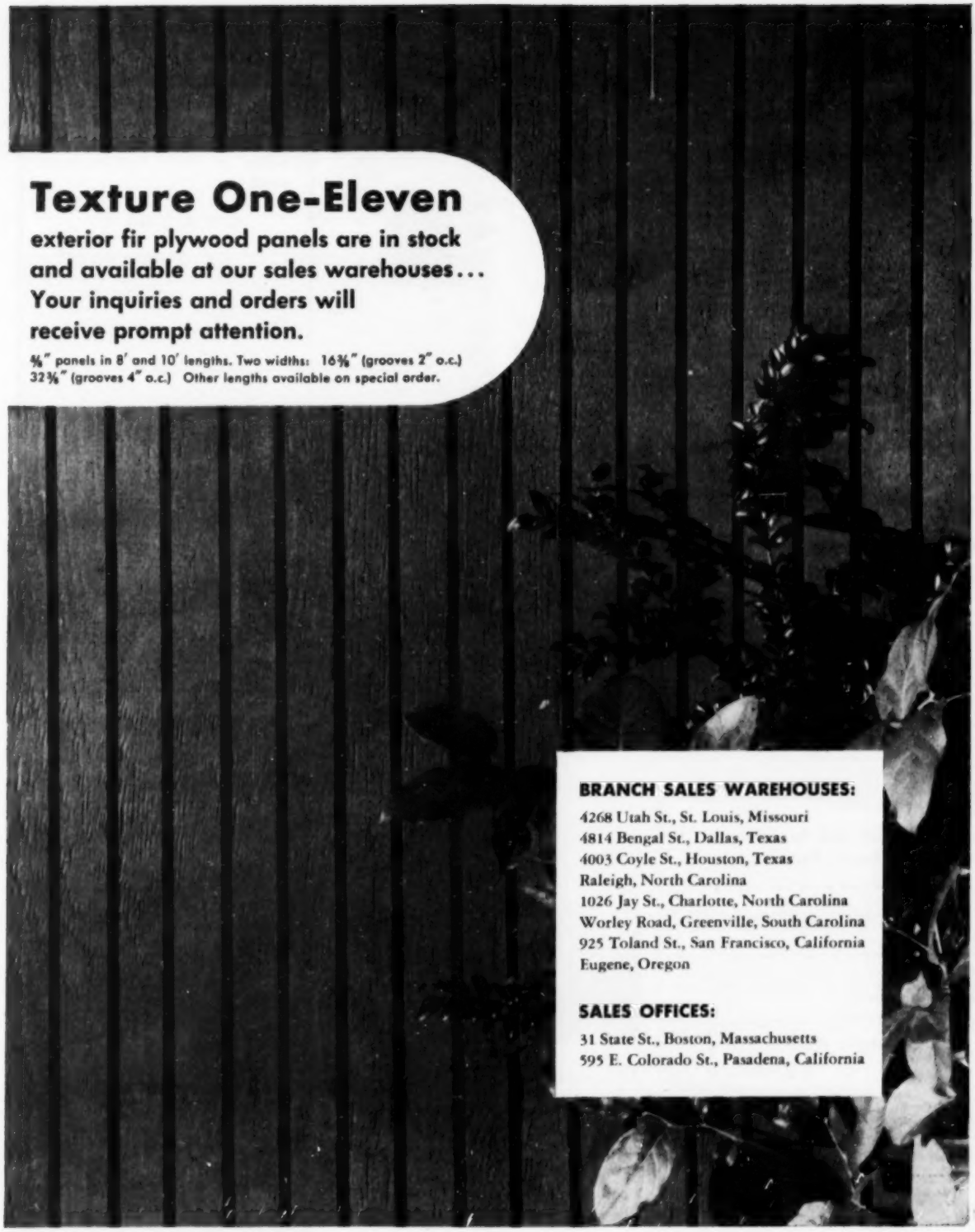
A multi-purpose 10 in. radial saw designed to combine the accuracy and versatility of the radial saw with the mobility of a portable electric saw is making its debut throughout the country this month. Developed by the Delta Power Tool Division of Rockwell Mfg. Co., Dept. WP, 430 N.

With extended table at right and removable roll-table at left. No. XJW.
Tannewitz "XJ"
FINEST THING IN MITRE SAWS!
Choice of 5 different tables enables you to obtain a mitre saw that matches EXACTLY your production requirements. Does away with awkward working conditions, steps up production, and saves time and money. Nothing like it. Moderately priced. Write for Bulletin XJ.
Sliding left section top and extended table at right. No. XJSW.
Standard solid table. (No. XJ) or sliding left section. No. XJS.
THE TANNEWITZ WORKS
GRAND RAPIDS, MICHIGAN
Extended table at right — extended sliding table at left. No. XJSW — J-430.



Installation: M & M Woodworking Company Longview Plywood Division, Longview, Wash.

SPEED PLYWOOD PANEL PATCHING with this Mann-Russell Electronic Generator, combined with specially-designed Globe Machine Manufacturing Co. "C" Frame. Normal curing cycle for hot-press stock is under 10 seconds; cold-press stock only slightly longer. Glue-bond is solid-set. Scorching problems are eliminated, moisture content unaffected. Panels are ready for immediate sanding; no stored panel heat to disperse. Mann-Russell manufactures a complete line of generators, presses, veneer and lumber edge-gluers, installed and serviced as a single-responsibility package. Write MANN-RUSSELL ELECTRONICS, So. 23rd and Pacific, Tacoma 2, Washington.



Texture One-Eleven

exterior fir plywood panels are in stock and available at our sales warehouses... Your inquiries and orders will receive prompt attention.

⅜" panels in 8' and 10' lengths. Two widths: 16⅜" (grooves 2" o.c.) 32⅜" (grooves 4" o.c.) Other lengths available on special order.

BRANCH SALES WAREHOUSES:

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4814 Bengal St., Dallas, Texas
4003 Coyle St., Houston, Texas
Raleigh, North Carolina
1026 Jay St., Charlotte, North Carolina
Worley Road, Greenville, South Carolina
925 Toland St., San Francisco, California
Eugene, Oregon

SALES OFFICES:

31 State St., Boston, Massachusetts
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APMI

ASSOCIATED PLYWOOD MILLS, Inc.

General Offices: Eugene, Oregon | *Plywood plants at Eugene and Willamina*
Lumber mill at Roseburg

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You'll save time and money, get better results with Thomas D. Perry's new book—

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Here's a practical, idea-packed book you'll use regularly if you have a gluing operation. Whether you're a lumber producer with laminating, edge gluing or end gluing problems—a plywood maker, furniture, cabinet or millwork manufacturer who could use time and money saving ideas in the glue room or press department—or make pianos, organs, caskets, boats, trailers, doors, desks, or what not . . . you'll find 150 GLUING QUESTIONS AND ANSWERS.

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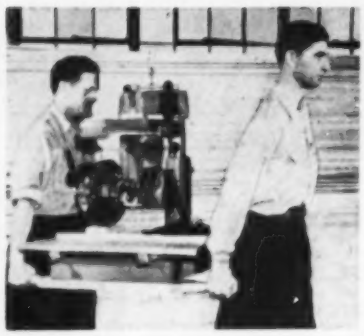

Lexington Ave., Pittsburgh, the saw weighs only 243 lb. and comes equipped with detachable wooden handles which enable two men to carry it easily.

Using the same exclusive 360° radial action as in the larger radial saws in the Delta line, the new model makes possible such varied operations as horizontal end cutting, bevel ploughing, radial routing, mass cut-off, double and single miter cuts, radius cuts, bevel sizing and jointing of angles, bevel rabbeting, tongue and groove flooring, panel cutting, drum sanding, dado cuts, circle routing, disk sanding, straight ploughing, pattern routing, stair stringer routing, bevel cut-offs and angle ripping. Table size is 22 x 30 in.

Automatic Vacuum Lift

Union Tool Corp., Dept. WP, Warsaw, Ind., has designed an automatic vacuum lift to handle nonporous wood pieces up to 40 x 40 in. or larger, at a rate of one to six sheets per minute. The machine contains its own vacuum plant and may be hooked into any electric power and air line. The machine will pick up at any level from floor to 36 in. high, and is adjustable through this range as well as turning through 180°, so as to be able to lay the sheet exactly into position in any repetitive operation.

BEHIND THE MILLS
THE CONNOR TIMBER STANDS

Over 115,000 acres of hardwood timber, assuring our customers of a backlog of choice Northern Hardwoods.

SPECIALIZING IN:

cut to size furniture plywood
cupboard doors
basswood bending panels
die boards
game boards
hardwood lumber cores
northern veneers
glued-up lumber dimension
school furniture plywood

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UNDERWOOD VENEER COMPANY
A Division of
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WAUSAU WISCONSIN

LEADING SOURCE FOR

Wholesale Pacific Coast Lumber

specialists in
- California Redwood
- Overhead Door Stock
- Ladder Rails
- Sitka Spruce
- Ponderosa Shop & Uppers
- Upland Hemlock
- Douglas Fir Clears
- Western Red Cedar
- Fir Plywood

look to wallace for lumber!

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GUARDIAN BUILDING, DETROIT, MICH.
WOODWARD 3-0862

New Chevrolet Trucks

are powered and priced to save you plenty!

When it comes to saving money, you just can't beat a new Chevrolet truck. Here are two good reasons why this is true—

YOU SAVE AT THE START

In fact, your savings start the moment you close the deal for your new Chevrolet truck. That's because Chevrolet is America's lowest-priced line of trucks. And yet, no other truck at *any* price offers you all the new features and advantages you get in these great new Chevrolet trucks.

YOU KEEP RIGHT ON SAVING

You save on operating costs with thrifty new high-compression power . . . on upkeep costs with new chassis ruggedness. And you get these savings with every new Chevrolet truck—from light delivery models to heavy-duty haulers. In addition, Chevrolet trucks traditionally put you dollars ahead at trade-in time.

Aren't these the kind of savings you want in a truck? Stop in and talk it over with your Chevrolet Dealer soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

MOST TRUSTWORTHY TRUCKS ON ANY JOB!

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The new "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT***—eliminates backrubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

**Optional at extra cost. Ride Control Seat is available in standard cabs only. "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.*

NEW CATALOGS and LITERATURE

Boiler Information Folder

Burkhart Engineering Associates, Dept. WP, Boston, Mass., has issued a four-page folder on the Consolidated Duo Boiler which it manufactures. Drawings show the specifications of the boiler, which generates both saturated and dry steam.

Booklet on Chipcore Systems

A comprehensive booklet has been issued by The Chipcraft Co., Dept. WP, Morristown, Tenn. In discussing Chipcore systems, features and costs of Chipcraft extruders are pictured and shown photographically. In addition, the booklet has diagrams of Chipcore systems.

Carbide Tipped Saw Catalog

Simonds Saw and Steel Co., Dept. WP, Fitchburg, Mass., has just prepared and issued a 16-page catalog of its line of wood cutting carbide tipped saws. The publication describes and illustrates saws designed and engineered for specific cutting jobs in all kinds of softwood, hardwood and plywood. Helpful suggestions concerning the care and use of carbide tipped saws are included in the catalog, as well as specifications of stock and standard sizes.

Multiple Spindle Borer Data

General specifications of the No. 448 Multiple Spindle Borer of Ekstrom, Carlson & Co., Dept. WP, Rockford, Ill. are listed on a data sheet. Photographs clearly show the construction of the machine, which requires 54 x 60 in. of floor space.

Federal Laminates Bulletin

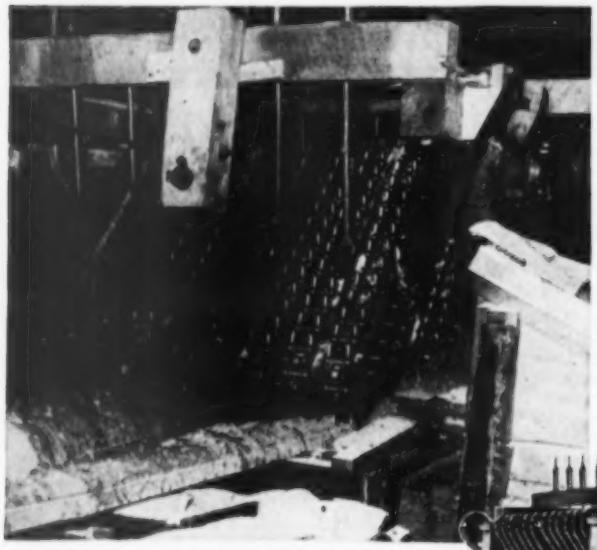
The first comprehensive government prepared handbook for producers and users of laminated timbers for barns, factories, churches, schools, bridges, and other heavy construction has just been published by the Forest Products Laboratory. The book, issued as Technical Bulletin No. 1069, is "Fabrication and Design of Glued Laminated Wood Structural Members," and can be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 60 cents. All important phases of production and use of laminated structural members are covered, from selection of lumber and gluing methods to engineering design formulas for determining proper sizes of beams, columns, arches, and truss members.

Log Carriage Drive Bulletins

Two new bulletins on completely electrified log-carriage drives with amplidyne control have been announced as available from General Electric Co., Dept. WP, Schenectady 5, N. Y. A two-color, eight-page publication, designated GEA-5786, describes the operation of the log-carriage drive and contains information on its advantages, maintenance and operating cost. The other bulletin, GEA-5992, provides four pages of detailed information on speed variator amplidyne-controlled log-carriage drives.

Cutting Tool Catalog

An illustrated catalog and technical data sheet giving complete information on Woodsman brand carbide tipped saw blades, router bits and hand router tools are being distributed by North American Products Corp., Dept. WP, Edwardsville, Ill. The literature will assist in the selection of the proper



McDonough 62" Horizontal Band Resaw, with split table.

Saws 120,000,000 board feet in...

24 years

...with only $43.40 average annual repair parts cost.

That's the performance record of this powerful McDonough 62" Horizontal Band Resaw at the Jackson Box Co., Black River Falls, Wisconsin. Mr. Dalby, mill manager, says, "Our McDonough 62" Horizontal Band Resaw easily cuts 25,000 board feet day after day. We get the maximum usable boards out of every log, with a saving in time, because McDonough's split table lets us saw 5/4 and 4/4 boards at the same time."

The new improved McDonough Horizontal Band Resaw with Timken roller bearings and other added refinements will help you increase your lumber output with lower maintenance costs. For year-in, year-out performance . . . always specify McDONOUGH.

Send for Bulletin H-62-1 for complete specifications.

World's Largest Producer of Band Resaws

McDONOUGH MANUFACTURING CO. 1504 GALLOWAY EAU CLAIRE, WIS.

type of blade or cutter, and gives the type of machine to which each style blade is best adapted.

Strapping Equipment Catalog

The Stanley Steel Strapping Division of The Stanley Works, Dept. WP, New Britain, Conn., announces the availability of its 1954 catalog – "Stanley Steel Strapping System." The 16-page piece contains complete information and is fully illustrated. New information featured includes a description of the Stanley Power Strapping Machine.

Planer and Saw Bulletins

Release of two bulletins has been announced by The Enterprise Co., Dept. WP, Columbiana, O. Planer Bulletin No. 204 completely describes and illustrates many features found in the Crescent Single Side Surfacer. Bulletin No. 205 explains the construction of the Crescent 36 in. Band Saw.

Tenoner Brochure

A 20-page brochure has been issued by Greenlee Brothers & Co., Dept. WP, Rockford, Ill. The first eight pages describe the construction of the Greenlee No. 545 Double-End Tenoner. In the remainder of the brochure are examples of the work of the tenoner, as well as pictures of attachments which can be used with it. Another Greenlee bulletin describes operating features of the Greenlee No. 227 Hollow-Chisel Mortiser.

Grinder-Polisher Leaflet

The "61" Universal Backstand Idler is described completely in a leaflet issued by the Coated Products Division, Dept. WP, Carborundum Co., Niagara Falls, N. Y. In this bulletin are reasons that this coated abrasive backstand grinder and polisher can be used on all types of wall, bench and floor operations.

Facer Bulletin

The unique design of the firm's No. 600 New-Matic Facer is the subject of a bulletin issued recently by Baxter D. Whitney & Son, Inc., Dept. WP, Winchendon, Mass. Illustrations show the power feed belt, which is studded with air cushioned feeding fingers of a tough rubber compound for high friction.

Assembly Gluing Catalog

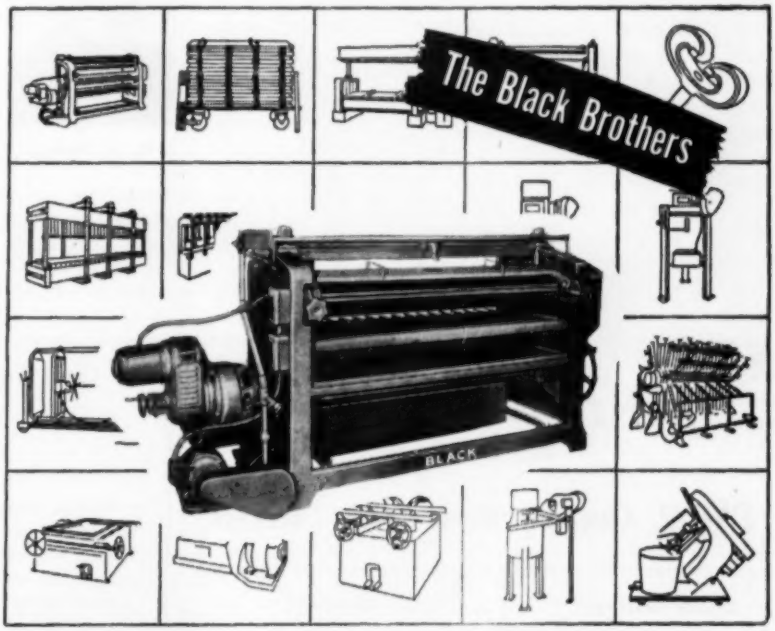
"Assembly Gluing in Volume Production" is the title of a catalog issued by National Adhesives, Dept. WP, 270 Madison Ave., New York. In the publication is recounted the history of gluing with reference to American mass production. Further, the catalog relates applications of glues for modern assemblies, explaining efficient application methods which can be employed.

Bulletins Issued on 3 Machines

E. V. Prentice Co., Dept. WP, 2303 N. Randolph St., Portland, Ore., has issued bulletins on three Raimann products which it distributes: Automatic Patching Machine, Knot Boring and Plugging Machine, and the KBU-KBUM Gang Rip Saws. Each bulletin gives full information on dimensions and capacity of the respective machine, as well as the features which distinguish the Raimann equipment.

Carbide Saw Leaflet

The special uses of Victory Saws are discussed in a new leaflet of the Victory Carbide Saw & Tool Co., Dept. WP, 3856 N. Ashland Ave., Chicago. Hints for care and repair service are given, as well as pointers concerning sharpening of the saws.



Resilient Roll, Ball Bearing Glue Spreader

The No. 22D Ball Bearing, Resilient Roll Spreader for resins, casein, and other cold glues is unmatched in speed, economy, accuracy, cleanliness and quality production. Gluing rolls are deeply covered with fine synthetic rubber, and are specially grooved to control the amount of resins deposited and to conform to irregularities in the veneer. Accurate, heavy duty ball bearings are sealed to keep lubricants in, and dirt and glue out. Doctor rolls are heavily *coated* with a highly polished, non-ferrous surface to accurately control the glue spread and eliminate corrosion. Investigate the No. 22D spreader . . . write for supplement to Bulletin 11-A.

"If It Is Gluing Equipment - We Have It"

THE BLACK BROTHERS CO., INC.
MENDOTA, ILLINOIS, U. S. A.

NAMES and EVENTS

Townsend Elected by SHPI

Mark Townsend, Townsend Lumber Co., Stuttgart, Ark., was elected president of the Southern Hardwood Producers, Inc., succeeding Charles R. Ransom, W. A. Ransom Lumber Co., Harahan, La., who was named chairman of the board of directors. Selected as vice-president for the coming year was Lawrence D. Kellogg, Kellogg Lumber Co., Alexandria, La. L. J. Heatherly was re-elected association secretary-manager.

At the president's banquet, Lee Robinson, Mobile River Saw Mill Co., Mount Vernon, Ala., was recognized as "Hardwood Industry Man-of-the-Year." A second figured southern red gum plaque was presented to C. R. Ransom, for outstanding service during his term as president. An industry forum on the production and marketing of hardwood wall paneling was moderated by Lawrence Kellogg. Panel members included John B. Veach, Max Pinkerton, Winthrop M. Hallett, Jr., Omar Hilton, S. M. Nickey, C. A. Rishell.

Directors elected to fill regular or unexpired terms are: W. E. Parks, W. E. Parks Lumber Co.; E. L. Douglas, Augusta Hardwood Co.; Omar Hilton, Bradley Lumber Co.; A. S. Johnson, Mansfield Hardwood Lumber Co.; L. D. Kellogg, L. D. Kellogg Lumber Co.; G. H. King, King Lumber Co.; N. F. McGowin, W. T. Smith Lumber Co.; S. M. Nickey, Jr., Nickey Brothers, Inc.; W. M. Hallett, Jr., Hallett Manufacturing Co.; James McGraw, Jr., McGraw-Curran Lumber Co.; Bruce Anthony, Urbana Lumber Co.

Fowler Heads Box Assn.

N. A. Fowler

Neil A. Fowler, vice-president of General Box Co., Des Plaines, Ill., has been elected president of the Wirebound Box Manufacturers Association by the directors to succeed J. A. Sowell of the T. R. Miller Mill Co., Brewton, Ala., who had served two terms.

The directors elected by the members are: S. J. Adkins, Adkins Mfg. Co., Gainesville, Fla.; Harry F. Blindman, Flour City Box Mfg. Co., Waterloo, Ia.; John C. Brill, Rathborne Hair & Ridgway Box Co., Chicago; J. A. Cragwall, General Box Co., Des Plaines, Ill.; D. K. Gooding, Wisconsin Box Co., Wausau, Wis.; George H. Kubes, American Box Co., Cleveland; F. J. Martin, Jr., Martin Brothers Box Co., Toledo, O.; J. R. Miller, Jr., T. R. Miller Mill Co., Brewton, Ala.; H. Wallace Norton, Cummer-Graham Co., Paris, Tex.; D. R. Simmons, Elberta Crate & Box Co., Bainbridge, Ga.; G. W. Thompson, Indianapolis Wirebound Box Co., Indianapolis, Ind.; A. L. Whiton, Chicago Mill and Lumber Co., Chicago.

A statistical review was presented by L. S. Beale, secretary of the association. He stated that the wirebound shipping container industry last year set new high records for both dollar volume of business and the number of containers it produced and sold.

Armstrong Heads Western Pine

U. R. Armstrong, vice-president and general manager of Hallack and Howard's lumbering operations in Winchester, Ida., was re-elected president of the Western Pine Association. Other officers re-elected at the organization's annual meeting include: vice-presidents G. L. Barkhurst, Michigan River Timber Co., Laramie, Wyo., and A. B. Hood, Ralph L. Smith Lumber Co.,

. . ◆NOW . . **KLOK** . . OFFERS ◆ . .
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Course TEACHES 1
- DESIGNING
- DETAILING
- RODMAKING

Course TEACHES 2
- Stock Billing
- Production Scheduling
- Cost & Time Study

For many years furniture and woodworkers all over USA and Canada have become successful by studying my famous KLOK HOME STUDY (correspondence) COURSE . . . Now, thru my new revised courses, it is even easier FOR YOU to succeed and get to the top. If you want better pay and a more secure future, KLOK INSTITUTE can help you.

WRITE FOR FREE FOLDER

So that I can give you a personal answer as to how valuable my training will be for you, write giving your age and your present woodworking experience.

WRITE ME TODAY! John H. Klok, President

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To Get Finer Plywood, Specify . . .

Permawood

Our 35 years successful experience, a top-grade management-skilled worker team, and use of the latest-type machinery and methods, has kept the quality of our product far above that of the average plywood. We offer it at competitive prices; and you're getting a finer value when you specify PERMAWOOD Hardwood Plywood.

A Hot-Plate Press in closed position. Skilled workmen exercise every care to insure that PERMAWOOD Hardwood Plywood is properly glued.

PERMAWOOD panels are made in Standard Sizes. Thicknesses in All Veneer construction from 3/20" to 1 1/16", and Lumber Core construction in 3/4" and 13/16". Widths from 30" to 48"; lengths from 36" to 96". Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.

Established in 1918

DARLINGTON, SOUTH CAROLINA

Anderson, Calif.; and treasurer, C. T. Gray, Stockton Box Co., Stockton, Calif. S. V. Fullaway, Jr., continues as secretary-manager for his twenty-fifth consecutive year.

Sage Heads Forest Council

The Forest Industries Council, policy coordinating organization of the lumber, paper, pulp and pulpwood industries, has re-elected as its chairman for 1954, Charles H. Sage, vice-president of Kimberly-Clark Corp., Neenah, Wis. Also re-elected were Truman Collins, Collins Pine Co., Portland, Ore., as deputy chairman, and A. Z. Nelson of the National Lumber Manufacturers Association as secretary.

Western Wood Recommendations

Western Wood-Preserving Operators' Association, 1410 S. W. Morrison St., Portland, is offering users and specifiers of pressure-treated Douglas fir and other west coast woods data in a new folder entitled "Wood Preservation." Treatments applied to wood to protect against rot, insects, fire and marine borers are described, as well as recommendations for design practices, fabrication, glue-laminated wood, and handling of pressure-treated lumber, poles and piling at the job site.

Plan Lumber Grading Course

The Department of Forestry at the Pennsylvania State University will give a short course in the grading of hardwood lumber June 14-18. The course will be conducted by a representative of the National Hardwood Lumber Association and will cover grading and inspection of native hardwoods. Consideration of thickness, measurement and manufacture, plus other questions will be answered. Further information may be had from Orvel A. Schmidt, Dept. of Forestry, Pennsylvania State University, State College, Pa.

Lumber Standards Revised

The Simplified Practice Recommendation R16-53, American Lumber Standards for Softwood Lumber, has been revised over a three-year period by the American Lumber Standards Committee. This recommendation which was originally issued in 1924 covers the basic standards used for grading, measurement, and inspection of softwood lumber. It has been necessary to revise these standards five times previously in order to keep them abreast of conditions and improvements made in the field of lumber standardization and simplification.

Printed copies of Simplified Practice Recommendation R16-53, American Lumber Standards for Softwood Lumber, may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 15 cents per copy. A discount of 25% will be allowed on orders of 100 or more.

Craft Elected by Traffic Men

Members attending the 35th annual meeting of Southern Hardwood Traffic Association elected the following general officers to serve for the ensuing year: President—Milton Craft; first vice-president—George T. McCall; treasurer—James E. Stark; Louisville District vice-president— P. P. Joyes; Eastern District vice-president—J. R. May; New Orleans District vice-president—J. B. Edwards; Helena District vice-president—J. K. Morgan.

Government Specs in Directory

Over 1400 government specifications for wood products are contained in a new directory compiled by the Timber Engineering Co., 1319

IF IT'S TURNED, A NASH CAN SAND IT!

NASH

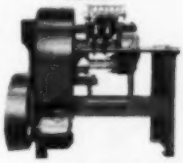
Automatic Sanders

Speed Up

Production — CUT COSTS!

No. 50 Automatic Turning Sander

No. 85 Chair Back Sander



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W.O.F.I. in Exposition

The Wood Office Furniture Institute will be one of the participants in the National Office Management Association's 1954 exposition of office machinery and business equipment. It is expected that more than 30,000 industrial leaders will attend the exposition, which is being held at Kiel Auditorium in St. Louis in conjunction with NOMA's 35th International Conference, May 24-27.

Two FPRS Section Meetings

The Pacific Northwest Section of the Forest Products Research Society will be held in the Gray's Harbor, Wash., area May 17-18. Registration will be at the Elks Club, Aberdeen on May 17. Speakers during the two-day session will present technical articles on hardboard problems.

The Ohio Valley section of the Society held its spring meeting in Louisville April 15 at the Kentucky Hotel. Speaking on methods of stacking air-dried lumber, handling ahead of kilns, automatic equipment and kiln drying were: John Devine, Moore Dry Kiln Co.; Raymond Rietz, U. S. Forest Products Laboratory, Madison, Wis.; Stephen Pryce, John Widdicomb Co.

Gluing California Redwood

The U. S. Forest Products Laboratory has classified California redwood as one of the woods that glue easily under a wide range of gluing conditions. Its texture and weight test among the most favorable woods for bonding surfaces, and its low shrinkage factor results in its holding its dimensions for long periods of time under widely differing moisture conditions.

Complete details of the various steps of seasoning, machining and gluing are offered in a new data sheet issued by the California Redwood Association. Titled "The Gluing of California Redwood," this data sheet presents tabulated and illustrated instructions for all phases of preparation and production.

Single copies may be obtained free upon request from the Product Services Division, California Redwood Association, 576 Sacramento Street, San Francisco.

Black Book Salutes N. C.

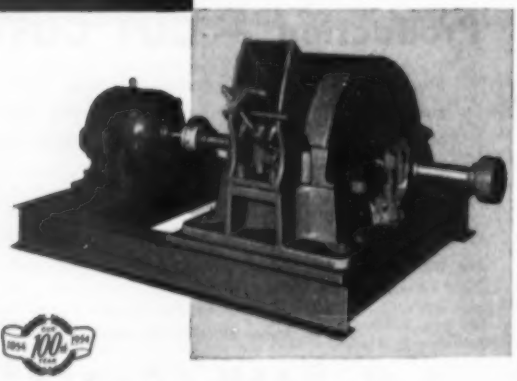
"Better Bonds", publication of Black Brothers, Inc., Mendota, Ill., features North Carolina in the 1954 Spring edition. It also includes a message by E. Howard Gatewood, Jr., on the comeback of wood office furniture. A similar story appeared as a special feature in the March, 1953, issue of Wood & Wood Products.

Personnel Changes

William R. Moffitt has been appointed a vice-president and technical director of the Borden Co.'s Chemical Division. His entire business career has been with the Chemical Division, since he joined the firm in 1938; he was formerly manager of the Division's West Coast operations.

Robert Drake, Joseph C. Betts, and Robert M. Pozzo have joined the sales staff of Carboloy Dept. of General Electric Co., Detroit. Mr. Drake will be a field sales representative for the organizations Atlantic District with headquarters in the Philadelphia office,

M&M WOOD HOGS



M & M Wood Hogs are built in many types and sizes to reduce slabs, edgings, blocks, veneer, bark and other waste to usable size chips. Write us for further information about M & M equipment, and how it can help with your wood disposal problem.

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WHITE FIR....INCENSE CEDAR

while Mr. Betts will have his headquarters in Detroit. Specializing in permanent magnets, he will contact accounts in Michigan and Ohio.

Carboloy Department has named Alden Supply Co., Inc., Philadelphia, an authorized distributor. The organization will carry the Department's entire line of standard cemented carbide tools and glanks, carbide-tipped masonry drills and diamond wheel dressers.

ROBERT LEPAGE has been appointed supervisor of the process engineering section of the abrasives laboratory of Minnesota Mining & Mfg. Co., St. Paul, Minn. Prior to his new appointment he was supervisor of basic research in the same department.

J. H. Huling

JOHN H. HULING has been named assistant to Burdett Green, executive vice-president of the Fine Hardwoods Association. He will work with Mr. Green on the expanded promotion, service and research program recently launched by the Association, which is composed of manufacturers of some 200 species of hardwoods.

Carborundum Appoints Two

F. JEROME TONE, JR., and FREDERICK T. KEELER have been appointed senior vice-president and director of sales, respectively, for the Carborundum Co., Niagara Falls, N. Y. Mr. Tone has been a member of the board of directors and vice-president, sales, since 1942, and will continue as chairman of the company's abrasive sales operating committee. Mr. Keeler, formerly director of the marketing branch of the Sales Division, will be responsible for the functional direction of the sales programs of the company and its subsidiaries.

Winslow Named Koppers V.P.

RALPH WINSLOW has been appointed a departmental vice-president of Koppers Co., Inc., after serving as manager of the Koppers Public Relations Dept. since January, 1947. He joined Koppers in 1945 as advertising manager.

J. W. SULLIVAN has been named manager, Colorado District, for the Wood Preserving Division of Koppers, Co., Inc., whose main offices are in Pittsburgh, Pa. Mr. Sullivan, whose responsibilities include plant operation, sales and procurement, succeeds R. C. Johnson, who was named special representative working out of the Colorado District office in Denver.

Goodman Acquires Diamond

Goodman Mfg. Co., 4834 S. Halsted St., Chicago, has acquired the line of Diamond Iron Works, Minneapolis, including hogs and chipmills used by the wood industries. Operating as Diamond Iron Works, Division Goodman Mfg. Co., manufacture will be transferred to the Goodman main plant in Chicago. Key personnel of Diamond concerned directly with sales, engineering and service will be retained under the direction of sales manager Carl E. Hanson and chief engineer W. Eckley, who will make Chicago their headquarters.

Deaths

GEORGE M. ROGERS, 72, vice-president in charge of sawmill operations for E. L. Bruce Co., Memphis, Tenn., died on March 19, after a year's illness. Joining the Bruce organization in 1921 as a yard foreman at Little Rock, he later served as manager of the Prescott, Ark., and Bruce, Miss., plants.

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OUR 77th YEAR
St. Joe Machines, Inc.
ST JOSEPH, MICHIGAN

GLYCERINE HAS A PLACE

Continued from Page 22

of wood are often restored and preserved by treatment with glycerine-containing compositions. In a recent example of such use reported[7] from England, water-logged staves of yew from a Saxon bucket were treated with a solution of potash alum, glycerine and water as part of the preservation process.

Methods for preserving new wood from harmful organisms may also make use of glycerine. For example, glycerine can be used with an arsenical compound in preparing products to protect wood from termites[8]. In other patented processes[9], glycerine-utilizing alkyd resins are employed in preparations suitable for fungus-proofing wood. And a recently developed method[10] suggests addition of glycerine-borate mixtures to tar and creosote preservative solutions to obtain better results. These newer combinations avoid splitting, checking and cracking of the wood.

Use in Wood Adhesives

As might well be expected, the plasticizing action of glycerine finds extensive use in conjunction with wood adhesives. Its hygroscopic action prevents the glue from becoming so dry as to lose its holding properties. Simultaneously, by plasticizing the adhesive film, the bonding agent continues to function under the many stresses and strains to which the wood may be subjected. Suitable glues for use as woodworking adhesives often are mixtures of glue, glycerine and water.

So-called synthetic glues may similarly benefit from the use of glycerine. For example, according to one foreign patent[11], urea-formaldehyde condensation products may be treated with suitable agents, including glycerine, to give glues or wood fillers that are much less brittle and more elastic than the untreated resinous products.

Laminating adhesives, such as are used for applying veneers and in the manufacture of plywood, not only make use of glycerine but also of the glycerine-utilizing resins. Thus an adhesive for making plywood may be prepared by treating casein with caustic potash and glycerine[12].

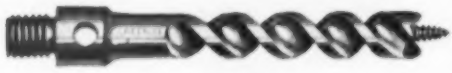
With resins coming more and more into the production of laminating adhesives, the alkyds are also finding expanding uses in the manufacture of these products. In a number of newer developments, the glycerine reaction products are used in conjunction with other synthetic resins to yield improved bonding agents. Resins suitable for low-pressure laminates, for example, may be prepared by blending a melamine-formaldehyde resin with an alkyd resin and styrene[13]. These resins are also suitable for use in surface coatings.

In another procedure[14], melamine-formaldehyde resin glues are modified with small amounts of glycerine-sebacic acid reaction products to improve the suitability of the adhesive for laminating wood with radio-frequency heat. By such modification, the working life of the glue is extended, there is more flexibility in set-up time and pressing time, and diminishing arcing.

Also interesting is the use of a glycerine-phthalic anhydride alkyd with a phenol-formaldehyde resin. The resulting product yields a patching compound for veneer plies in the manufacture of plywood that withstands boiling[15].

Wood Coatings

All wood workers are aware of the great improvements in coatings and finishes for wood that have been developed during recent years. It is no exaggeration to say that glycerine has contributed greatly to these superior finishes, first as a component of ester



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gum and later, and much more extensively, as a main reactant in the formation of alkyd resins.

It is well known[16,17] that the first synthetic resin for finishes, introduced to the American paint industry about 1900, was made by neutralizing rosin with glycerine. The resulting "ester gum" showed superior water-resistance and hardness as compared with the natural resin. When combined with tung oil, ester gum yielded varnishes that dried very rapidly and had remarkable resistance to water. Many old-timers will still remember the number of so-called "spar" varnishes that were made available at that time.

Subsequently it was found that Baekeland's phenol-formaldehyde molding resins could be made oil-soluble by heating with ester gum. These combinations, which were made available under a number of trade names, when cooked with tung oil gave varnishes with much greater drying speed and with better durability and water-resistance than the natural resin varnishes or spars made with tung oil and ester gum. With the availability of these glycerine-utilizing materials, coatings entered the era of the "four-hour" finishes.

Ester gum still finds wide use in preparations for finishing wood products. But more important from the viewpoint of volume, range of usefulness and adaptability are the glycerine-utilizing alkyd resins. Indeed, as remarked by Glaser[18], the alkyds ushered in what may be considered the golden age of paint chemistry.

Dominant Alkyds

Today the alkyds occupy the dominant position among resins used in the formulation of protective and decorative coatings. The reasons for this status, as explained by Glaser, are to be found in such superior characteristics as inherent flexibility and gloss retention, excellent color retention and weathering properties, adhesion, versatility, and relatively low price.

In chemical terminology an alkyd resin is described as the combination of a polyhydric alcohol with a polybasic acid. Although other polyhydric alcohols are employed, glycerine is by far the most important of this type of compound used in alkyd manufacture. With very few exceptions, the alkyd resins for industrial use are modified with oils, fatty acids and various other materials.

Thus, by varying the type and proportions of ingredients, by adjusting reaction conditions and by the proper selection of modifying agents it is possible to formulate alkyd resins that are "tailor made" for a specific job.

Hence, the advantages of alkyd resins are to be found in almost every type of finish for wood, including stains, fillers, sealers, lacquers, varnishes, enamels and many specialty coatings. Illustrative of the use of these resins in wood fillers is a composition which dries sufficiently to accept surface coats within about one-half hour. Such fillers are formulated, according to the patent[19], through the use of suitable alkyd resins as binders.

The recent patent literature shows the increasing use of alkyds in combined-action products, such as stain-fillers[20, 21]. Moreover, these resins are also being used to advantage in three-way products that serve simultaneously as stains, fillers and sealers[22].

Alkyds in Sealers

Alkyds, of course, enter extensively into the production of modern sealers. They have important uses, for example, in the lacquer sealers that are so widely used in finishing wood furniture. As pointed out by Wampler[23], the cellulose derivatives which form the bases of such compositions provide quick-drying, hardness and sealing properties. However, for various reasons they must be modified in various ways.

Alkyds are extensively used as

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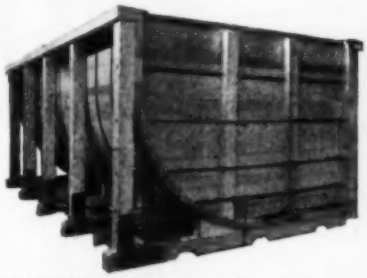
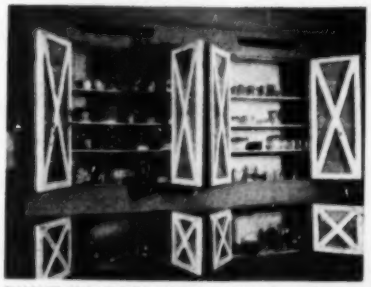


DYE VAT calls for Redwood's amazing resistance to decay, shrinkage, warping, even under intermittent wetting and drying.

TINY HOTHOUSE for tropical blooms puts Redwood's high insulating value and beauty of grain and texture to work.



BUILT-IN CABINETS of Redwood and Redwood plywood are easily constructed and will give years of service, free from warping or swelling.

Three of these products are illustrated here. For specific information on the use of Redwood for *your* product, write the California Redwood Association, 576 Sacramento Street, San Francisco 11.

The Association includes sixteen of the nation's leading Redwood lumber mills, all in Northern California: Simpson Logging Co., Union Lumber Co., Warm Springs Redwood Co., Willits Redwood Products Co., Wolf Creek Timber Co., Inc., Arcata Redwood Co., Coastal Plywood & Timber Co., Eureka Redwood Lumber Co., Hammond Lumber Co., Holmes Eureka Lumber Co., Hulbert & Muffly Lumber Mill, M & M Wood Working Co., Northern Redwood Lumber Co., The Pacific Coast Co., The Pacific Lumber Co., Rockport Redwood Co.

modifiers for lacquer sealers. Thus, soft, elastic alkyds made with glycerine are added to provide adhesion, elasticity and toughness.

Newer types of sealers also make use of alkyd resin superiorities. One product of this sort, an economical and efficient water-impervious sealer for wood, has an alkyd rather than a cellulose base. Designed as a penetrating, non-sanding, moisture-resistant undercoat for all types of lacquers, enamels and paints, this sealer is recommended for all types of wood, including plywood, which may be subject to water immersion or weathering. The product finds its major use in the finishing of brush handles, wooden bobbins for textile mills, doors and mill work[24].

Also indicative is the growing use of alkyds in the high-solids synthetic resin sealers. Such sealers, says Letsky[25], have been made possible by the introduction of hard maleic resins and by rapid-drying short-oil alkyds. These products have excellent flow and rapid hardening and offer great economies in the amount of finishing lacquer necessary to achieve the final result.

Letsky also points out that, as far as the formulation of finishing lacquer is concerned, there is no doubt that the high-solids lacquer has come to stay. Aside from the saving in cost and operations, it also eliminates the needless waste of solvent in the low solids lacquer. He notes that low-viscosity nitro-cottons in combination with ester gum and a variety of short-oil alkyds are now largely used. With these combinations, solid contents of 30 to 40% are now quite common.

This last is a fairly recent development. However, those who know their paint history are aware that during the early 1930's, the use of alkyds to improve nitro-cellulose lacquers ushered in the modern revolution in all types of finishes. Two decades later, it was still recognized that the "best resins to use with nitro-cellulose are synthetic alkyd resins . . ."[26].

As remarked by Powell[27], with the advent of alkyd resins and high-boiling plasticizers, lacquers were gradually improved to approach the ideal furniture finish. Incorporation of these materials served to impart such desirable properties as easy rubbing, print resistance and durability.

Indicative of the value of these resins are the results obtained in a European study[28]. Here it was found that drying alkyds are capable of considerably improving the properties of nitro-cellulose lacquers, increasing tear resistance and hardness without undue sacrifice in elasticity. Water resistance and durability are also improved by the addition of the alkyds.

Alkyds have likewise contributed to improved varnishes for wood products. In discussing such finishes Jamieson, a wood process engineer, has pointed out[29], that as far as synthetic air-drying varnishes used in the furniture industry are concerned, the major interest is centered about the alkyds made by combining glycerine, phthalic anhydride and the drying oil fatty acids.

In comparison with the older types of coatings, Jamieson noted that the alkyd resin varnishes set more rapidly and dry dust-free in a quicker time. Although they take longer to thorough-dry, they are much tougher and more resilient when they reach their maximum hardness.

The alkyd varnishes react very rapidly at the usual baking temperatures and require little time in the oven. They do not discolor on baking and are more nearly water-white and do not discolor on aging. Moreover, alkyds have great durability and somewhere between 50 and 100% longer life can be expected when they are used. They display remarkable adhesion to smooth surfaces and are

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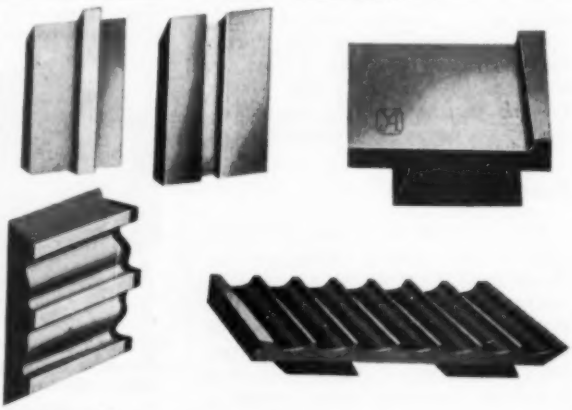

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less sensitive to improper surface cleaning.

The relationship between varnishes and enamels is indicated in Wampler's[29] observation that enamels for industrial use are essentially varnishes with pigments ground into them. Hence, it is to be expected that the advantages inherent in alkyd resin varnishes will be imparted to alkyd-based enamels. The importance of this superiority is apparent in the fact that enamel finishes are widely used on kitchen, breakfast room and bedroom furniture.

It is obvious that glycerine has much to offer toward the production of improved wood products. Its serviceability as a wood bending aid should find new applications. Glycerine's contribution to better bonding agents is constantly growing.

This applies as well to adhesives based on glycerine-containing resins. Such resins, notably the alkyds, are also prime contributors to better, more beautiful and more durable finishes for all types of wood products.

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Woodwork Publicity

The first of a series of mailings of technical brochures to architects has been sent by the Architectural Woodwork Institute, 332 S. Michigan Ave., Chicago. This development of the Institute has received favorable comment from architects, colleges, and universities.

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A. F. Walker & Son Inc.
New Ipswich, N. H.

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Kingfield, Me.

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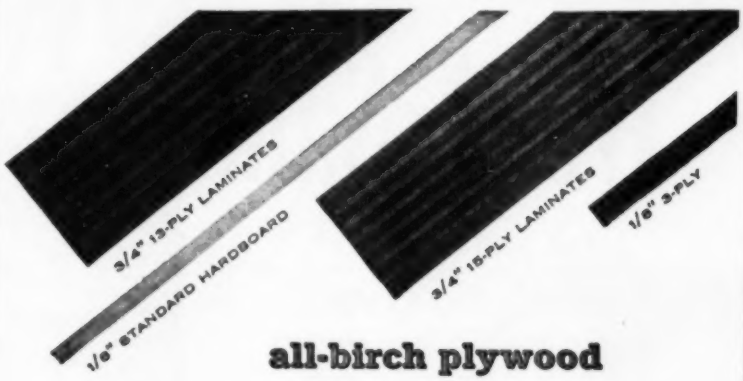

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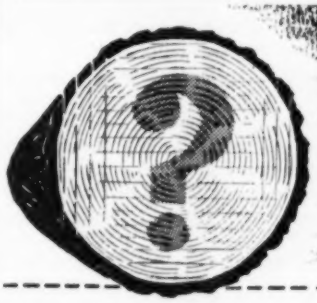

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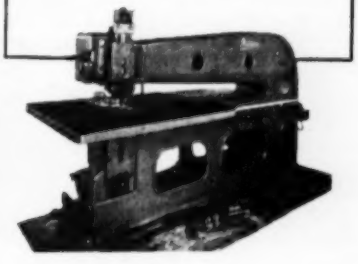

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Wood Salutes

HAROLD E. HOLMAN

LONG A CHAMPION of greater wood usage and development, and highly regarded throughout the wood industry, Harold E. (Hal) Holman is long overdue for recognition for his many contributions to the industry's advancement down through the years.

Both as a member of the industry and in later years as a government official, he long ago gained the reputation of constantly acting in the best interests of the industry, always being fair in his dealings and doing all in his power to aid the industry within the framework of the laws and regulations he was charged with upholding.

Following a lifetime of experience in the industry, Mr. Holman retired last year from his position as chief of the Forest Products Division, U. S. Department of Commerce. He had also served as deputy director of the National Production Authority's Lumber & Wood Products Division, having joined that division of what was then the War Production Board in 1942 and first serving as chief of the Log & Lumber Branch.

Joining the Department of Commerce as Forest Products Division director in 1948, he promptly initiated a program providing for industry participation in policy and programs. As a result of this advance planning, the forest products industry had its advisory committee all ready to go to work when the Korean outbreak necessitated organization of the National Production Authority.

Thanks largely to Mr. Holman's efforts, the wood industry was the only major industry that operated during the entire life of NPA without production or distribution control orders.

From 1948 to 1953 Mr. Holman represented the Department of Commerce on the Forest Products Committee of the Munitions Board. He also served as secretary of the National Lumber Survey Committee.

His experience in the industry began in 1912 as a faller and bucker with the Polson Logging Co. at Hoquiam, Wash. Two years later he joined the Hoquiam Lumber & Shingle Co. and by 1917, when he enlisted in the 20th Engineers, U. S. Army, he had attained the position of assistant to the sawmill superintendent.

After his discharge from the Army, he entered the University of Washington Forestry School, where he earned his B.S. degree in Logging Engineering. His studies included sawmill design and construction. His connections in the industry included the following:

Production manager for Carpenter Lumber Co., Minneapolis and Everett, Wash.; five years with U. S. Department of Interior in development of forest management plan for utilization of timber on Navajo Indian Reservation and design of band mill; reorganization of Menominee Indian Mill at Neopit, Wis., and some years of consulting work.

On April 30, 1953, when "Hal" Holman retired to his 25-acre farm in Maryland, he took with him the warmest wishes of the wood industry for his well-being. His continuing interest in the industry's progress is evidenced by his timely and provocative article on page 28 of this issue of WOOD & WOOD PRODUCTS.

JOHN G. KUENZEL

IN HIS CAPACITY as head of the Wood Products Branch of the Materials Development Division, U. S. Navy Bureau of Ships, and in fact ever since he joined the Bureau in 1942 as a forest products engineer, John G. Kuenzel has been affectionately known among his many business friends and government associates as the Navy's "Mr. Wood"—a title justly merited by his experience and "know how."

Mr. Kuenzel's standing in his chosen field, and the high regard in which his abilities are held by his superiors in the Navy, explain why he was recently sent on a two months' tour of European wood shipbuilding and laminating activities to show a new Navy training film on "Marine Laminating" and to observe marine laminating practices in European free countries. He visited London, The Hague, Brussels, Copenhagen, Oslo, Paris and Rome, as well as numerous shipyards engaged in building wooden craft along the western and southern coastal areas of the Continent. He left Washington the latter part of January and returned on March 24.

A native of Minnesota and a graduate of that state's great university, Mr. Kuenzel also had the benefit of post-graduate work at the Yale School of Forestry. For 10 years after his graduation as a forester he worked with the Minnesota Forest Service on problems of fire protection and timberland surveys. During 1928-30 he worked in Canada as a forester and logging engineer for the Minnesota & Ontario Paper Co. Since then the U. S. Government has claimed his services, including 10 years in the Forest Service and 10 years in the Navy Department.

In the Forest Service Mr. Kuenzel held various forest management and utilization research posts in the Lake States and in the hardwood forests of the Central States, the Ozarks and the Appalachians. In his years with the Navy he has sparked many of the wood products developments with which that department has been identified.

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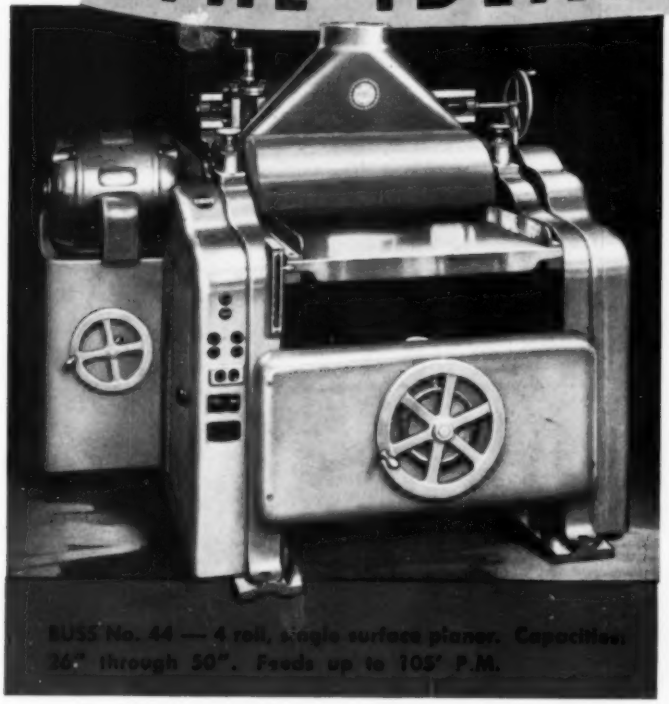

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